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Prewar World Production and Consumption of Plant Foods in

FERTILIZERS

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PREWAR WORLD PRODUCTION AND CONSUMPTION OF PLANT FOODS IN FERTILIZERS

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INFORMATION on prewar world production and consumption of each of the three major plant foods—nitrogen, phosphoric acid, and potash—and of phosphate rock is important in determining the location, magnitude, and significance of possible shortages. Such information is necessary for the solution of fertilizer supply and requirement problems that may follow reoccupation of conquered territories and for the planning of postwar relief and rehabilitation programs.

PREWAR WORLD SUPPLY

The prewar average annual world production of commercial plant foods was about 2.2 million metric tons [1] of nitrogen, 3.5 million tons of phosphoric acid, and 2.7 million tons of potash. The corresponding values for apparent consumption were 2.4, 3.9, and 2.5 million tons, respectively. The 12.2 million tons of phosphate rock produced supplied the principal part of the phosphoric acid. Appreciable quantities, however, were supplied by guano, bones and bonemeal, fish and animal fertilizers, and other materials.

Europe led the world in the production and use of nitrogen, available phosphoric acid, and potash, both in total tonnages and in quantities consumed per unit area of arable land and of arable land and permanent meadows and pastures. Europe also was a net exporter of each of these plant foods and led in exports of available phosphoric acid and potash. South America was the only other net exporter of nitrogen materials.

Africa and North America were the leading world producers of phosphate rock, and Europe was largely dependent upon these sources, mostly North Africa, for the rock required in the production of available phosphates. South America and Asia also exported considerable phosphoric acid as guano, bones, and bonemeal.

The world's potash requirements were supplied principally by Europe, North America, and Asia. The combined production of North America and Asia was about 11 percent of the world total; consumption exceeded production, however, and amounted to approximately 20 percent of the world supply.

The general relationships between prewar world distribution and supply of the principal plant foods—nitrogen, phosphoric acid, and potash—in commercial fertilizers and of phosphate rock, based largely on data for 1936–38 and 1937–39, are shown in figures 1 and 2.

Nitrogen

The leading prewar producers of nitrogen were Germany, Chile, Japan, and the United States. German production was nearly three times that of Chile and, in fact, slightly exceeded the combined production of Chile, Japan, and the United States. The production of these latter three varied from each other by less than 20,000 tons a year. Germany also was the largest consumer of chemical nitrogen; the United States, Japan, and France followed. German consumption was about 70 percent greater than that of the United States, more than double that of Japan, and nearly 3¾ times that of France.

Germany ranked fifth with regard to the quantity of nitrogen used per unit area of arable land and fourth for that used on the basis of arable land and permanent meadows and pastures. Consumers of more nitrogen than Germany per unit of arable land were: The Netherlands, more than twice as much; the Belgo-Luxemburg Economic Union, 50 percent more; Japan, about 40 percent more; and Egypt, about 11 percent more. Germany in turn used more than 12 times as much nitrogen per unit of arable land as the United States, which ranked twenty-second. The Belgo-Luxemburg Economic Union, the Netherlands, and Japan exceeded Germany in the use of nitrogen per unit area of arable land and permanent meadows and pastures. The United States ranked thirteenth in this category.

Chile, Germany, Norway, the United Kingdom, and Manchuria led in volume of exports of nitrogen. Chile, Norway, Manchuria, and Yugoslavia exported 83 percent or more of their production, whereas the exports of Germany were only 15 to 16 percent of total production; Canada, Switzerland,

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[1] Except as otherwise indicated, the tons used in this report are metric tons of 2,204.63 pounds.

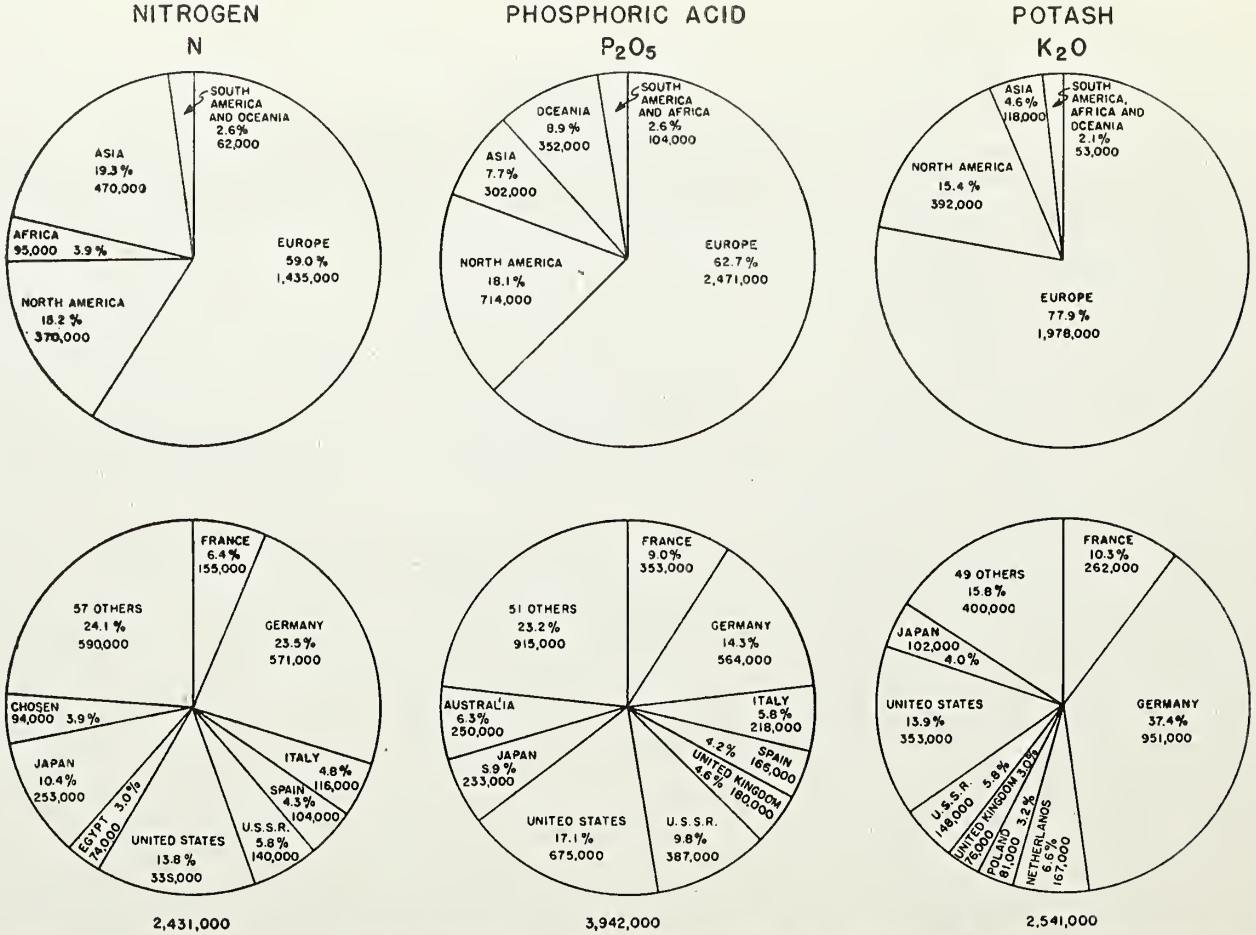

Figure 1.—Distribution of average annual tonnage (metric tons) of apparent world consumption of plant foods in commercial fertilizers.

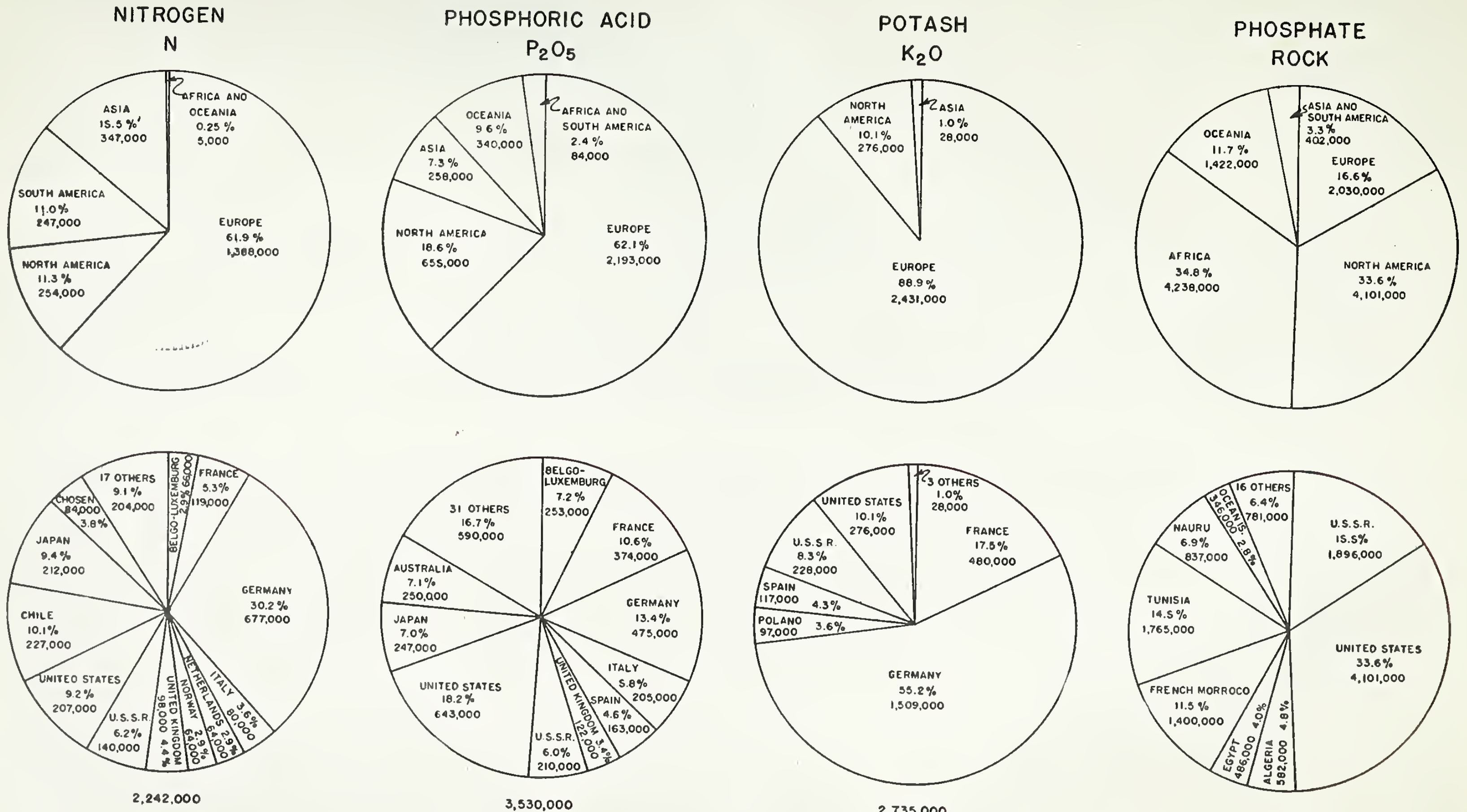

FIGURE 2.—Distribution of average annual tonnage (metric tons) of world production of phosphate rock and of plant foods in commercial fertilizers.

and the United Kingdom exported more than 55 percent.

The United States, although the fourth largest producer of nitrogen, ranked first in volume of imports but twenty-third in percentage of requirements imported. It obtained three-eighths of its requirements from foreign sources, principally Chile and Canada. Other large importers of nitrogen were Spain, Egypt, Denmark, and Taiwan, in that order. At least 99 percent of the chemical nitrogen for fertilizer was obtained from foreign sources by seven countries or regions in Africa (Egypt, the Canary Islands, Mauritius, Algeria, Réunion, Tunisia, and Southern Rhodesia), six in Asia (Taiwan, the Netherlands East Indies, Ceylon, the Philippine Islands, British Malaya, and Portuguese India), six in Europe (Denmark, Portugal, Finland, Greece, Latvia, and Estonia), five in North America (Puerto Rico, Martinique, Barbados, Cuba, and Guadeloupe), and by Hawaii in Oceania.

Europe, including the Union of Soviet Socialist Republics (hereafter called the Soviet Union), produced and used more nitrogen than all the rest of the world. Its production was 4 times that of Asia and about 5½ times that of either North America or South America. Production in North America slightly exceeded that in South America. Europe used 3 times as much nitrogen as Asia, about 3⅞ times as much as North America, and 15 times as much as Africa, the next largest consumers. Only South America and Europe produced nitrogen in excess of internal requirements. South American exports were more than 6½ times those of Europe in volume and represented a high percentage of the entire production, whereas European exports were equivalent to less than 3 percent of production. Europe exceeded all others in the use of nitrogen per unit area of arable land and of arable land and permanent meadows and pastures.

Phosphoric Acid and Phosphate Rock

The principal producers of available phosphoric acid were the United States, Germany, France, the Belgo-Luxemburg Economic Union, and Australia. United States production was 35 percent greater than that of Germany, 70 percent greater than that of France, and more than 2½ times that of either the Belgo-Luxemburg Economic Union or Australia. The United States also was the largest consumer, with Germany, the Soviet Union, France, and Australia following in order. The Belgo-Luxemburg Economic Union ranked twelfth in this category. United States consumption was about 20 percent greater than that of Germany, 75 percent greater than that of the Soviet Union, 90 percent greater than that of France, more than 2⁷⁄₁₀ times that of Australia, and nearly 8 times that of the Belgo-Luxemburg Economic Union.

Tunisia, New Zealand, French Morocco, Australia, and Lithuania led the world in the quantity of phosphoric acid used per unit of nitrogen. New Zealand, the Netherlands, the Belgo-Luxemburg Economic Union, Switzerland, and Japan, however, used the most phosphoric acid per unit of arable land. The Netherlands used about 47 percent more phosphoric acid per unit of arable land than the Belgo-Luxemburg Economic Union, and 2¼ to 2¾ times as much as Switzerland or Japan. The use in New Zealand exceeded that in the Netherlands by more than 20 percent. The Belgo-Luxemburg Economic Union and the Netherlands used nearly twice as much phosphoric acid per unit of arable land and permanent meadows and pastures as any other country. Japan, Denmark, Germany, and Australia were next in rank in this category.

The Belgo-Luxemburg Economic Union, France, British India, Japan, and the United Kingdom led in volume of exports of phosphates other than phosphate rock. The Belgo-Luxemburg Economic Union exported nearly 70 percent of its production of available phosphoric acid; with the exception of French Morocco, Greece, Nouvelle Calédonie, and Seychelles, none of the other countries or regions exported more than 17 percent.

The United States, although in first rank as a producer of available phosphoric acid, imported sufficient quantities of bones, bonemeal, guano, and ammonium phosphates to rank twenty-second in the volume of net imports of P_2O_5. The largest importer was Germany, with 15 percent of its requirements. Other large importers were Canada, Switzerland, the Union of South Africa, and Finland. Among the importers of 60 to 95 percent of their requirements were Canada, Egypt, Estonia, Taiwan, Lithuania, Norway, and Switzerland. A number of countries or regions imported their entire requirements; these included British Malaya, the Canary Islands, Ceylon, French Guinea, Guadeloupe, Hawaii, Martinique, Mauritius, the Philippine Islands, Puerto Rico, Réunion, and Southern Rhodesia.

The United States was the largest producer of phosphate rock, producing one-third of the world total and exporting one-fourth of its output. The next largest producer was the Soviet Union, followed in order by Tunisia, French Morocco, and Nauru. These latter three exported 95 to 100 percent of their production. With the exception of the Soviet Union, practically all European countries, including the principal producers of available phosphates, obtained 90 percent or more of their supplies of phosphate rock from foreign sources.

Europe, including the Soviet Union, produced and consumed nearly five-eighths of the world production of available phosphoric acid. It produced, however, only one-sixth of the phosphate rock, and imported more than three-eighths of the world production, or about 2¼ times its own production. As a result of these large imports of rock, Europe attained first rank in exports of phosphates other than phosphate rock. Asia and South America were the only other net exporters of such phosphates, and their volumes approximated two-thirds and one-half, respectively, that of Europe. North America was second in volume of production and consumption of available phosphoric acid and in the production of phosphate rock. It ranked first however, in volume of imports of available phosphoric acid and received about 4 percent of its requirements from external sources. The largest producer and exporter of phosphate rock was Africa. Africa was second in volume of imports of available phosphoric acid and received nearly 30 percent of its requirements from foreign sources.

The use of available phosphoric acid per unit of nitrogen was greatest in Oceania; North America and Europe were second and third, respectively. Europe exceeded the rest of the world in the use of available phosphoric acid per unit area of arable land, as well as of arable land and permanent meadows and pastures.

POTASH

Germany was the largest producer of potash. France ranked second and was followed in order by the United States, the Soviet Union, Spain, Poland, and Palestine. Although it was not recorded by the International Yearbook of Agricultural Statistics, Chile also produced some potash in connection with its large production of sodium nitrate. The quantity, however, was small in comparison with the other countries mentioned. Germany produced 55 percent of the reported world total, France 17.5, the United States 10, the Soviet Union 8, Spain 4, Poland 3.5, and Palestine less than 1 percent. Germany also was the largest consumer, with the United States next in rank, followed by France, the Netherlands, and the Soviet Union. German consumption was more than 2½ times that of the United States, 3¾ times that of France, nearly 5¾ times that of the Netherlands, and more than 6 times that of the Soviet Union.

Cuba, Tunisia, French Morocco, Poland, and Estonia led the world in the quantity of potash consumed per unit of nitrogen. Hawaii, Martinique, Mauritius, Réunion, Poland, and the Philippine Islands used the most potash per unit of available phosphoric acid. In addition to these Germany, the Netherlands, French Guinea, the Canary Islands, British India, and Norway used more potash than phosphoric acid. The countries or regions that used the most potash per unit of arable land, as well as of arable land and permanent meadows and pastures, were the Netherlands, the Belgo-Luxemburg Economic Union, Germany, Norway, and Japan. The quantity of potash used per unit of arable land in the Netherlands was 3 to 3½ times that used in the Belgo-Luxemburg Economic Union and Germany, respectively. The latter countries in turn used about 3 times as much as Norway and Japan.

The principal exporters of potash were Germany, France, Spain, the Soviet Union, and Palestine. Germany exported two and one-half times the quantity exported by France. Germany exported 37 percent of its production, France 45, Spain 79, the Soviet Union 35, and Palestine 88 percent.

Japan imported about 95 percent and the United States about 22 percent of their requirements. Practically all other countries not previously mentioned were dependent upon foreign sources for their potash.

Europe produced nearly 90 percent of the world supply of potash and consumed 70 to 80 percent of it. North America and Asia were the only other recorded producers. Production in North America was about 10 times that in Asia. North America was second in volume of potash consumed and imported nearly one-third of its requirements, attaining first rank in volume of imports. Europe was the only net exporter. More potash was used in Europe per unit of nitrogen than elsewhere; North America used about 80 percent as much. Europe exceeded all others in potash used per unit area of arable land and of arable land and permanent meadows and pastures.

SOURCES OF INFORMATION

Prior to World War II the International Yearbook of Agricultural Statistics (*12*)[2] contained a section in which official and other statistics relative to production, consumption, import, export, and trade of fertilizers and fertilizer materials were listed by commodities for various countries. Although that publication has its limitations in a survey of plant-food production and consumption for a particular country, it is nevertheless the most complete and accurate source of fertilizer statistics on a world-wide basis.

Mixed fertilizers, as they are known in the United States, concentrated and ammoniated superphosphates, ammonium nitrate mixtures, and certain compound materials, as ammonium phosphates and the Nitrophoskas, were not listed by the International Yearbook of Agricultural Statistics (hereafter abbreviated IYAS) as individual commodities. In many cases the reported tonnages of individual commodities included the quantities used in the formulation of mixtures or quantities equivalent to the plant-food content of unlisted materials. In others, the plant-food content of such commodities was disregarded, and in a few instances it was reported separately in explanatory notes. The IYAS also omitted statistics on the production and consumption of bones and bonemeal, on the production of ammonium nitrate, and on the consumption of guano. Trade statistics, however, were given for all these commodities, and in addition data were presented on the consumption of ammonium nitrate and the production of guano.

Data on potash materials were recorded by the IYAS in various ways. Production was given in terms of the total K_2O content of all commodities. Consumption was given in the same manner or in terms of the gross tonnage of all materials. Trade statistics, however, were given for individual commodities on the gross-tonnage basis.

PLANT-FOOD CONTENT OF FERTILIZERS

In order to present a clear picture of the prewar world fertilizer situation, data for the period 1930–39 were assembled for each country from the various issues of the IYAS. In some cases official publications and other published material were consulted to supplement the information for a country. These data were then correlated to eliminate discrepancies and to provide a historical basis for supplying estimates of a commodity where needed to complete the data for a given year. The data for the most recent and complete 3-year periods, in most cases 1936–38, were then evaluated to determine the total annual quantities of the individual plant foods and phosphate rock produced, consumed, and imported or exported. All quantities are given in metric tons.

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[2] **Italic numbers in parentheses refer to Literature Cited, p. 29.**

In making the evaluations it was necessary to assign a plant-food content to each commodity. Only a few commodities were assigned a value applicable to all countries, since the average chemical composition of a commodity varies from country to country because of differences in methods of manufacture and in the raw materials available. To avoid duplication in estimates of plant-food content of phosphates and inclusion of materials destined for other than agricultural use, the P_2O_5 content of phosphate rock was omitted from the evaluations, except for those quantities of rock reported to have been used for direct application to the soil. The values assigned to each commodity in the different countries are given in the following tabulation.

ASSIGNED VALUES OF PLANT-FOOD CONTENT

NITROGEN MATERIALS

	Percent N
Ammonium nitrate	35.0
Ammonium nitrate-limestone mixtures	20.5
Ammonium sulfate:	
Algeria, Austria, Czechoslovakia, Estonia, Finland, Germany, Poland, Rumania, Sweden, Switzerland, Yugoslavia	21.0
Australia, British India, Ceylon, Eire, Martinique, New Zealand, Portugal ,Union of South Africa, United Kingdom	20.6
France, French Morocco	20.4
Belgo-Luxemburg, Netherlands	20.0
All others	20.5
Bonemeal, bones	4.0
Calcium nitrate:	
Norway	13.0
Norway and all others	15.5
Cyanamide:	
Italy	15.5
All others	20.5
Guano:	
Mauritius, Nouvelle Calédonie, Seychelles	0
All others	13.0
Potassium nitrate:	
Hawaii	14.0
United States	13.75
All others	13.0
Sodium nitrate:	
Argentina, Austria, Barbados, Bulgaria, Canada, Chile, Czechoslovakia, Denmark, Estonia, Finland, Germany, Hawaii, Hungary, Japan, Latvia, Lithuania, Manchuria, Norway, Poland, Sweden, Switzerland, United States	16.0
All others	15.5

PHOSPHATE MATERIALS

	Percent P_2O_5
Basic slag:	
Algeria, Belgo-Luxemburg, Canada, Chile, France, French Morocco, Netherlands, Tunisia, United States (imports only)	18.0
Spain	15.5
Ceylon, Eire, Martinique, New Zealand, Union of South Africa, United Kingdom	14.0
All others	15.0
Bonemeal, bones	24.0
Guano:	
Nouvelle Calédonie	36.0
Mauritius, Seychelles	30.0
All others	11.0
Superphosphate:	
Australia, New Zealand	20.5
Canada, Finland	20.0
Japan, Chosen	17.0
Algeria, Chile, Egypt, Eire, French Guinea, Greece, Martinique, Mauritius, Poland, Réunion, Southern Rhodesia, Spain, Tunisia, Union of South Africa, United Kingdom, Yugoslavia	16.0
Belgo-Luxemburg, France, Italy, Netherlands, Portugal	15.0
Soviet Union	14.0
All others	18.0

POTASH MATERIALS

	Percent K_2O
Potassium chloride	55.0
Potassium nitrate:	
United States	21.5
Hawaii	14.0
All others	44.0
Potassium sulfate	50.0
Kainite, carnallite, sylvinite:	
France, French Morocco	30.0
Soviet Union	27.0
Poland	20.0
Eire	16.0
All others	18.0
Unspecified potash materials:	
Puerto Rico, United States	60.0
Austria, Germany	37.5
Czechoslovakia	35.0
Denmark, Norway	30.0
Eire, Switzerland	25.0
All others	40.0

PLANT-FOOD STATISTICS BY GEOGRAPHIC DIVISIONS AND UNITS

The results of the evaluations and related studies on ratios and rates of application of plant foods are presented in the Appendix in tables 5 to 10. The data in these tables are given by geographic divisions and units, and each is assigned its respective world rank based on a 3-year average (in a few instances on a 2-year average). Production, consumption, and trade statistics are given for each of 3 years to emphasize normal variations and trends. Only the average values, however, were used in determining ratios, rates of application, and relative world rank.

During the course of these evaluations, data that had been compiled by the Stickstoff-Syndikat,[3] Berlin, were made available[4] on the use of nitrogen, phosphoric acid, and potash in fertilizers in the principal countries of the world. The Syndikat figures, issued in June 1938, covered the agricultural years 1925–26 through 1936–37, with tentative figures on nitrogen for 1937–38. These compilations did not include consumption of individual fertilizer commodities or any information on production and trade. Exact agreement between the data compiled by the Syndikat and the present evaluations was not expected. In general, however, the apparent consumption figures of table 6 are in good or fair agreement with those of the Syndikat and reflect the same trends in usage. Thus, it appears that much of the basic information from which the Syndikat figures were derived was the same as that available to the International Institute of Agriculture.

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[3] STICKSTOFF-SYNDIKAT. VERBRAUCH AN N-P_2O_5-K_2O IN DEN WICHTIGSTEN LÄNDERN AB 1925–26. 48 pp., illus. 1938. [Processed.]

[4] Courtesy of W. E. A. Husmann, Department of Agronomy, Virginia Agricultural and Mechanical College and Polytechnic Institute, Blacksburg, Va.

The world production of nitrogen, phosphoric acid, potash, the sum of these plant foods, and phosphate rock are presented in table 5. It also includes the relative world rank of each country and geographic division in respect to its production of these items. The column for P_2O_5 refers to the phosphoric acid content of phosphatic materials other than phosphate rock. Except as previously explained, the phosphoric acid content of the phosphate rock produced was not evaluated. The estimated average grade of rock produced in each country, however, is given in the footnotes.

Both the recorded and apparent consumption of nitrogen, phosphoric acid, potash, and total plant food, and the respective relative world rank are given in table 6. The recorded consumption represents the plant-food content of the materials listed under consumption in the IYAS. Apparent consumption is usually defined as the sum of production and imports minus exports. In this report, however, the further condition was imposed that apparent consumption equal or exceed recorded consumption. Thus, when production and trade statistics for a commodity indicated a lower value than recorded under consumption, the recorded quantity was entered under apparent consumption. In a few cases where the recorded consumption of a commodity appeared to be production plus imports uncorrected for exports or changes in stocks, this condition was not imposed. In general, therefore, apparent consumption as entered in table 6 equals or exceeds the recorded consumption and is considered the more accurate of the two values.

The ratio of the apparent average annual consumption of nitrogen, phosphoric acid, and potash in commercial fertilizers and the relative world rank of the individual ratios of P_2O_5 to N, K_2O to N, and K_2O to P_2O_5 are presented for each country in table 7.

A tabulation of trade balances, showing whether a geographic division or unit produced a surplus of a particular plant food or was dependent on outside sources of supply for all or a part of its requirements, is given in table 8. Net exports, or production in excess of internal requirements, and the percentage of the production that was exported are indicated by minus (−) signs. Net imports and the percentage of apparent consumption that was imported are represented by plus (+) signs. Under ideal conditions the deviation of the world totals of this table from zero would be an indication of the over-all reliability of the data. This criterion cannot be quantitatively applied in this case, since little is known concerning net changes in stocks, and the periods covered were not identical for all countries. In most cases, however, the deviations from zero, as measured in terms of percentage surplus or deficit, are surprisingly small.

The areas of arable land and of permanent meadows and pastures attributed to each country by the IYAS are given in table 9.

The average consumption of nitrogen, phosphoric acid, and potash per unit area of arable land and per unit area of arable land and permanent meadows and pastures for the various countries is shown in table 10. The values for apparent consumption from table 6 and of areas from table 9 were used in determining these averages.

AFRICA

The apparent average annual consumption of commercial plant food per unit area of arable land and the ratio of use of nitrogen, phosphoric acid, and potash are presented in figure 3 for each country in Africa for which data were available. This figure, and similar figures for other geographic divisions and units, was constructed so that the depth of shading for each country would be directly proportional to the use of plant food per unit area of arable land. Thus, if the rate of use in one country is x times that in another, the cross-sectioning for the first country contains x times as many squares per unit area as for the second. Each square, irrespective of size, may be regarded as representing a definite quantity of plant food, in which case the respective enclosed areas of squares of different sizes bear the same relation to each other as the areas of arable land receiving equal quantities of plant food.

ALGERIA

Algeria is one of the three North African countries that supplied Europe with phosphate rock. Nearly 93 percent of the output was exported. Between 40,000 and 80,000 tons of superphosphate was produced each year, and net imports of this material averaged 5,400 tons. Basic slag imports also averaged 2,200 tons annually. Imports of ammonium sulfate supplied about 80 percent of the nitrogen consumed.

An average of more than 4,000 tons K_2O was imported each year, and most of it was in the sulfate combination.

ANGOLA

Production and consumption figures for Angola were not listed. Exports of guano, the only fertilizer item for which trade data were given, totaled 6,000 to 8,100 tons annually.

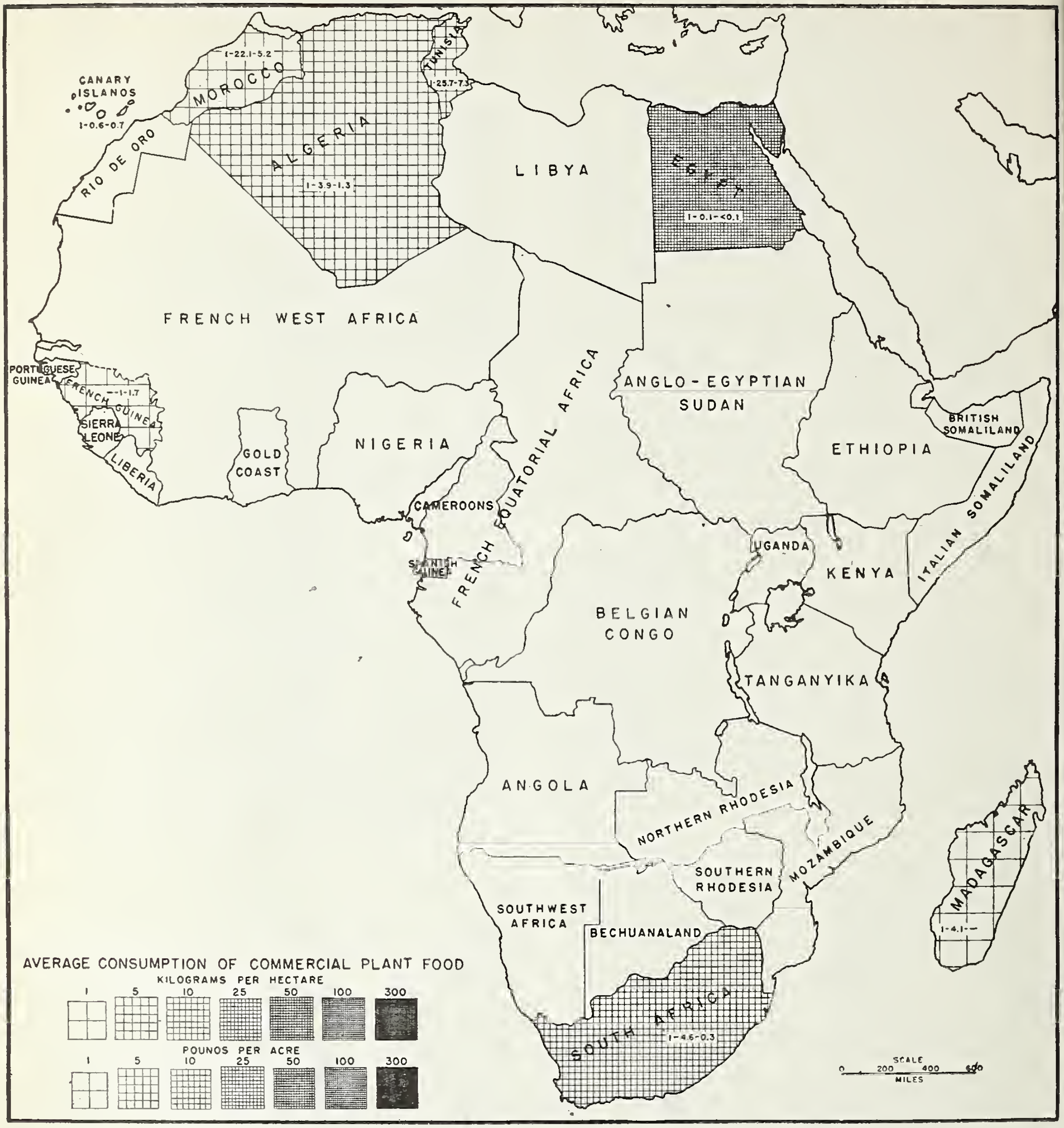

Figure 3.—Apparent average annual consumption of commercial plant food per unit area of arable land and ratio of use of nitrogen, phosphoric acid, and potash in Africa. (Based largely on data for 1936–38.)

CANARY ISLANDS

No production or consumption data for the Canary Islands were available. Trade statistics were given for 1933 and 1934 only. No exports were listed for those years, but nitrogen, phosphoric acid, and potash were imported. Ammonium sulfate, averaging 21,200 tons, superphosphate 16,100, and potassium sulfate 6,400 were the most important imports; guano and sodium nitrate totaled less than 1,000 tons each.

EGYPT

Egypt was a large producer of phosphate rock. In recent years the supply has amounted to as much as 531,000 tons in a single year (1936). Small quantities of a nitrate shale were produced for local consumption, but with this exception all nitrogen fertilizers were of foreign origin and principally in the nitrate form.

The nitrogen consumed each year, almost 74,000 tons, gave a very high rate of application per unit of cultivated area. The quantity of phosphate mined exceeded the reported exports by 5,000 to 18,000 tons annually. Since no data on the production of superphosphate were given, however, both recorded and apparent consumption of P_2O_5 (table 6) were based on superphosphate imports, which averaged about 56,000 tons a year. Exports of bone averaged 3,300 tons a year.

Potash consumption was variable but seldom exceeded 160 to 480 tons K_2O. Phosphate and potash fertilizers, as shown by table 6, were of much less importance than nitrogen in Egyptian agriculture.

FRENCH GUINEA

Imports averaging only 2,000 tons of superphosphate and 1,100 tons of potassium sulfate were recorded for French Guinea.

FRENCH MOROCCO

French Morocco was the second largest producer of phosphate rock in North Africa. The average annual output of 1,400,000 tons was exceeded only by Tunisia.

About 100 to 400 tons of nitrogen was imported as ammonium sulfate and calcium and sodium nitrates, but nitrogen equivalent to 200 to 900 tons was exported as guano and bones. No production or consumption data were given for any of these materials.

The listed exports of phosphate rock accounted for practically all (99.75 percent) the production. The rock retained appears to be less than that needed to manufacture the average of 28,000 tons of superphosphate reported produced each year. Basic slag brought in for local consumption averaged 1,600 tons annually.

Potash consumption was listed as the sum of the various potassium materials imported. Annual imports were equivalent to 1,000 to 1,500 tons K_2O.

MADAGASCAR

Madagascar exported 78 percent of an average of 5,100 tons of phosphate rock mined each year. Five hundred tons of ammonium sulfate was imported annually, and 600 tons of bones and bonemeal was exported. No information was given for any other fertilizer material.

MAURITIUS

No production data for Mauritius were available. Annual imports of 11,600 tons of ammonium sulfate equaled almost 98 percent of the recorded nitrogen consumption. The only other materials listed as consumed were sodium nitrate and crude potassium salts, their values being identical with net imports. Imports of 4,300 tons of potassium nitrate, however, contributed to the apparent consumption values for nitrogen. An average of 1,100 tons of guano and 500 tons of superphosphate also was imported. The IYAS recorded no export trade in fertilizers.

RÉUNION

Consumption of 3,300 tons of imported ammonium sulfate and 400 tons of sodium nitrate was shown for Réunion. In addition, small quantities of calcium, sodium, and potassium nitrates, superphosphate, and potassium chloride were brought into Réunion. Although not recorded, some phosphatic guano was probably imported from the Seychelles Islands.

SEYCHELLES ISLANDS

Seychelles exported its entire production of leached bird guano, which averaged 18,400 tons a year, equivalent to about 8,500 tons P_2O_5. No other data were available.

SOUTHERN RHODESIA

The IYAS reported the net annual imports of superphosphate and bonemeal as averaging 6,900 and 100 tons, respectively, for Southern Rhodesia. No data on production, consumption, or trade were given for other materials.

TUNISIA

Tunisia was the largest producer of phosphate rock in North Africa. In fact, more than 1,700,000 tons were produced for export each year. Any correlation between production, exports, and tonnages used in the manufacture of superphosphates was impossible, because of the large stocks on hand. More than 13 percent of the superphosphate consumed was imported. An annual average of 600 tons of basic slag was also brought in and used in agriculture.

The use of nitrogen materials in Tunisia was very limited, and only about 1,000 tons of ammonium sulfate, 200 tons of sodium nitrate, and smaller quantities of calcium nitrate were imported. All the potash consumed was imported, and potassium chloride was the most favored material.

UNION OF SOUTH AFRICA

The Union of South Africa consumed an average of 240,900 tons of superphosphate annually. About 62 percent of this was produced in local plants from imported phosphate rock. The only other fertilizer materials produced were 6,000 tons of guano and 700 tons of ammonium sulfate a year. In addition, an average of 13,900 tons of ammonium sulfate, or 95 percent of the consumption, was imported. Considerable tonnages of ammonium nitrate, sodium nitrate, basic slag, bonemeal, and potash were also imported for consumption.

Potassium salts for the most part were unspecified potash fertilizers, and consumption was given as the sum of imports. Guano exports varied from 200 to 4,300 tons yearly. Apparent consumption exceeded recorded consumption for nitrogen and P_2O_5, because not all the imports were listed as consumed.

Asia

The apparent average annual consumption of commercial plant food per unit area of arable land and the ratio of use of nitrogen, phosphoric acid, and potash are shown in figure 4 for certain Asiatic countries and parts of Oceania.

BRITISH MALAYA

Production and consumption were not reported for British Malaya. About 5,100 tons of bones and fish meal and 100 tons of potassium nitrate made up the yearly net imports. The 145,000 to 160,000 tons of phosphate rock listed as net exports originated in Christmas Island, which is incorporated in the settlement of Singapore for administrative purposes.

BURMA

The IYAS did not list production or consumption data for Burma. An average of 500 tons of ammonium sulfate was imported, and from 400 to 1,100 tons of bones and bonemeal were exported annually.

CEYLON

Ceylon produced no fertilizers but imported a wide variety. Ammonium sulfate has supplied as much as 85 percent of the average of 8,468 tons of nitrogen used yearly. The consumption figures given were listed as net imports, but certain imports—for example, guano, bonemeal, potassium nitrate, and phosphate rock—were not listed under consumption. This accounts for the particularly wide spread between the recorded and apparent consumption of P_2O_5 (table 6). Potassium chloride supplied 80 percent of the potash used.

CHINA

Production statistics were entirely lacking for China, although it is known that apatite was mined and some superphosphate manufactured. From 20,000 to 35,000 tons of bones and bonemeal was exported annually. Data on consumption were limited to the net imports of ammonium sulfate, which amounted to 110,000 to 160,000 tons annually. Trade statistics indicated that sodium nitrate, superphosphate, and potassium nitrate also were imported for fertilizer use.

CHOSEN (KOREA)

Chosen was shown to have an average annual production of more than 400,000 tons of ammonium sulfate, 20,000 tons of cyanamide, and 35,000 tons of superphosphate. No production of potash was listed.

Not counting imports of 22,000 tons of ammonium sulfate each year, consumption of this material was only about 76 percent of the production. On the other hand, cyanamide consumption exceeded production and no trade data were given for it. Considerable tonnages of calcium and sodium nitrates and a small tonnage of phosphate rock were also used. Only 74 percent of the superphosphate available from imports and internal manufacture was reported consumed. No potash trade or production statistics were available, although the total consumption of K_2O was given.

The superphosphate, calcium nitrate, and part of the ammonium sulfate came from Japan. Ammonium sulfate statistics provided most of the discrepancies in the recorded and apparent nitrogen consumption.

CHRISTMAS ISLAND (INDIAN OCEAN)

Fertilizer statistics for Christmas Island were limited to exports of phosphate rock. An average of 163,900 tons was exported in 1936, 1937, and 1938. These exports, as previously indicated, were also recorded as exports of British Malaya.

CYPRUS

Superphosphate consumption averaged 3,800 tons a year for Cyprus. No other data were listed.

HONG KONG

No production or consumption of fertilizer materials was shown. Hong Kong, chiefly a trading center, appeared to reexport ammonium sulfate, potassium nitrate, and bones.

INDIA: BRITISH

British India manufactured an average of 17,100 tons of ammonium sulfate, or about 23 percent of its annual consumption of this material. Guano (principally fish meal) and crude potassium nitrate also were produced, but the entire output of each was exported.

Imports for consumption averaged 60,700 tons of ammonium sulfate, 2,800 of sodium nitrate, 7,500 of superphosphate, and 4,000 of potash salts, equivalent to about 1,800 tons K_2O.

An average of 115,500 tons of bones and bonemeal was exported each year. Since the IYAS did not tabulate the production or consumption of bone manures, exports of these materials were omitted in calculating apparent consumption.

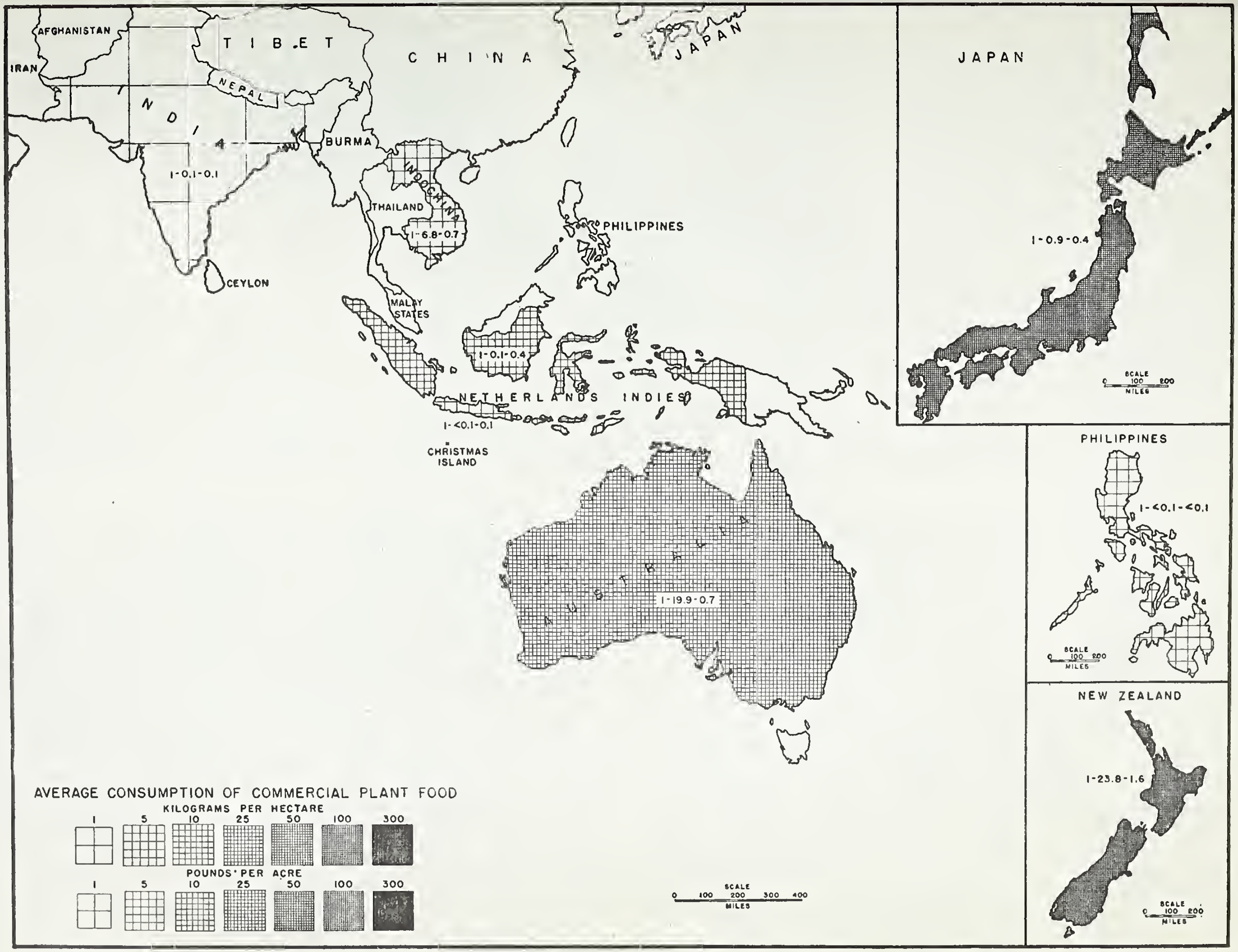

FIGURE 4.—Apparent average annual consumption of commercial plant food per unit area of arable land and ratio of use of nitrogen, phosphoric acid, and potash in parts of Australasia and adjacent areas. (Based largely on data for 1936–38 and 1937–39.)

INDIA: FRENCH

The only data recorded for French India were annual exports of 100 to 400 tons of bonemeal.

INDIA: PORTUGUESE

For Portuguese India the only data available showed that 300 to 500 tons of ammonium sulfate was imported annually.

INDOCHINA

Phosphate rock was the only fertilizer material for which production statistics were recorded for Indochina. An average of 37,100 tons, or about 78.5 percent of the annual production, apparently was applied directly to the soil. The rest of the production, the listed imports of rock, and the annual average of 1,700 tons of superphosphates imported were not included in the consumption data and account in part for the discrepancy between the recorded and apparent P_2O_5 consumption (table 6).

Ammonium sulfate made up 59 percent of the 1,380 tons of nitrogen imported, but only cyanamide was listed as consumed. An average of 1,600 to 1,800 tons of potash salts, principally chloride, was imported for agricultural use. About 1,500 tons of bones was exported annually.

JAPAN

Japan was the world's largest user of ammonium sulfate and ranked third in the consumption of nitrogenous fertilizers. This statement applies to Japan alone and excludes Chosen and Taiwan. About 23 percent of the annual cyanamide production, or 60,000 to 70,000 tons, was converted to ammonium sulfate, making the total production of the sulfate more than 1,000,000 tons in 1938. In addition, large tonnages of the sulfate were purchased outside greater Japan, and, although more than 130,000 tons was sent to Taiwan in export trade, Japan's net imports averaged more than 140,000 tons of ammonium sulfate a year.

Production and consumption data were far from complete. About 22 percent of the cyanamide production remained unaccounted for, after allowing for the quantities converted into ammonium sulfate. Only 59 percent of the imports of sodium nitrate was reported consumed. Imports of bones and bonemeal averaged 56,000 tons. Production and consumption of potash materials were given in terms of K_2O. Exports included 55,600 to 86,000 tons of fish meal each year. From 35,000 to 46,800 tons of calcium nitrate were sent to Chosen.

Although largely dependent upon foreign sources for phosphate rock, Japan ranked second only to the United States as a superphosphate producer (1930–1937), but sixth as a producer and consumer of available phosphates. Japan ranked sixth also in the consumption of potash, of which 95.7 percent was imported.

MANCHURIA

No consumption data were reported for Manchuria, and statistics on potash materials were omitted entirely. There was an average annual production of about 220,000 tons of ammonium sulfate, of which about 82 percent was exported. In 1938, 44,800 tons of bones and bonemeal was exported. Small quantities of sodium nitrate were imported each year.

NETHERLANDS EAST INDIES

The IYAS reported the production of phosphate rock in Netherlands East Indies, but gave no data on superphosphate production, although the phosphate rock was not designated as exported or consumed. D'Agremond (*1*) indicates that nearly two-thirds of the P_2O_5 consumed is used as finely ground phosphate rock.

The principal yearly imports were 90,800 tons of ammonium sulfate, 4,800 of superphosphate, and 5,300 of unspecified potash fertilizers. Small quantities of sodium nitrate, calcium nitrate, and guano also were imported. Some exports of bones were listed.

Java and Madura.—No production or consumption data were given. Ammonium sulfate was the only nitrogen material imported in quantity, as ordinarily less than 900 tons each of calcium nitrate, sodium nitrate, and guano were received. Imports of superphosphate ranged between 3,100 and 4,800 tons. From 100 to 700 tons of bones was exported. Potassic materials were not specifically listed, but annual imports of unspecified potash fertilizers totaled 2,200 to 3,200 tons.

Outer Provinces.—Production and consumption data were not given. Exports were limited to a few hundred tons of bones annually. The principal import was 13,800 tons of ammonium sulfate, although small quantities of guano, superphosphates, and potash also were reported.

PALESTINE

No consumption figures for fertilizer materials were reported for Palestine, and production and trade statistics were available for potash only. An average of 32,100 tons of potassium chloride was exported each year; the production data were in terms of K_2O.

PHILIPPINE ISLANDS

The only data reported for the Philippines were imports of ammonium sulfate, superphosphate, and potassium sulfate and consumption of the imported ammonium sulfate. The average imports were 32,400 tons of ammonium sulfate, 600 of superphosphate, and 400 of potassium sulfate each year. In addition to these items it appeared that imports of ammonium phosphates, mixed fertilizers, and other fertilizers averaged about 4,500, 6,000, and 3,000 tons, respectively (*27*, *30*).

SYRIA AND LEBANON

No production or consumption data were given for Syria and Lebanon. An average of 700 tons of phosphate rock was imported each year.

TAIWAN (FORMOSA)

The only production reported for Taiwan was a yearly average of 21,600 tons of superphosphate. The source of the required rock was not shown in the IYAS. The origin of the cyanamide consumed also was withheld.

Only two other fertilizer materials, ammonium sulfate and superphosphate, were listed as consumed. Net imports of these items, however, averaged 12 to 13 percent more than their recorded consumption. More than 2,700 tons K_2O was imported as sulfate and chloride salts, but their use was not reported. The larger shipments of fertilizer materials were noted as trade with Japan.

TURKEY

No production or consumption data for fertilizer materials were listed for Turkey, and no trade in potash compounds was reported. About 1,000 tons of sodium nitrate was imported each year, and 1,300 tons of bones was exported.

EUROPE

For European countries the apparent average annual consumption of commercial plant food per unit area of arable land and the ratio of use of nitrogen, phosphoric acid, and potash are given in figure 5.

ALBANIA

No data on fertilizers for Albania were recorded.

AUSTRIA

The latest year for which production and consumption data for Austria were available was 1937. Trade statistics, however, were listed for 1938 as well.

Cyanamide was the principal source of nitrogen and supplied about 33 percent of the quantity consumed. It was followed in order by calcium nitrate, 26 percent; ammonium sulfate, 21; sodium nitrate, 12; and ammonium nitrate, 8 percent. More bonemeal was exported than imported, but no data for production and consumption were given. Ammonium sulfate and superphosphate were the only commodities for which production data were given, although the production of phosphate rock was reported at Prambachkirchen in 1935 (*25, p. 85*). The same source indicated that superphosphate was produced at Prambachkirchen and Rannersdorf, and that ammonium sulfate was produced mainly at the Vienna gas works. Construction of a plant to produce nitrogen fertilizers from coke-oven gases was reported under consideration in 1939 (*28*). The average annual production of the sulfate amounted to 5,800 tons and that of superphosphate, to 39,400. The superphosphate, apparently produced from both domestic and imported rock, constituted about 55 percent of the consumption of phosphoric acid. The remaining 45 percent was supplied by imported basic slag.

A small export trade in potassium nitrate was indicated. Potash requirements of about 9,000 tons K_2O were supplied by imports.

BELGO-LUXEMBURG ECONOMIC UNION

Production and consumption figures were recorded for Belgium and Luxemburg separately, but trade statistics were given only for the Economic Union. Trade-balance data for Belgium or Luxemburg were calculated either as (1) production minus consumption, (2) consumption, or (3) production minus consumption for the one part of the Union plus trade balance of the Union, to give the export or import values for the other part.

Belgium was reported to have nine synthetic nitrogen plants—at La Louvière, Leval-Trahégnies, Ougrée-Marihaye, Selzaete, Tertre, Tilleur, Vilvorde, Willebroeck, and Zandvoorde—with an annual productive capacity of 180,000 tons of nitrogen, as synthetic ammonium sulfate, sodium nitrate, ammonium nitrate or nitrochalk, and calcium nitrate (*23*). In addition, byproduct capacity for ammonium sulfate production was estimated at 12,000 tons of nitrogen a year, and a plant at Langerbrugge was estimated to have an annual capacity of 30,000 tons of cyanamide.

The Union annually produced almost 66,000 tons of nitrogen and 252,000 tons or more of phosphate materials, but imported all its potash. It exported almost 26 percent of its nitrogen products and 69 percent of its P_2O_5. It was second only to Germany as a producer of basic slag, with an output of 1,357,500 tons in 1937.

Data on the consumption of basic slag in Belgium were not available, but the Union's export figures accounted for only 78 percent of the production. Luxemburg contained about 9 percent of the area of the Economic Union, and its fertilizer consumption was relatively lower. It produced 39 percent of the Union's basic slag and consumed 5.5 percent of this output. Only minor quantities of nitrogen and potash compounds were utilized, although the rate of plant-food application was higher than the European average. Belgium's consumption per hectare on the other hand ranked second only to the Netherlands, which had the highest rate of application of the three major plant-food elements in Europe. Belgium produced all the nitrogen materials of the Union and exported half the ammonium sulfate produced. It imported bones, guano, sodium nitrate, and 34 percent of the cyanamide consumed.

Phosphate rock was imported to manufacture superphosphate, 51 percent of which was exported. An average of 43 percent of the potassium chloride imports was converted into potassium sulfate for export trade. Consumption of K_2O exceeded 64,000 tons annually.

BULGARIA

No production or consumption data were recorded for Bulgaria. Annual imports of fertilizer materials

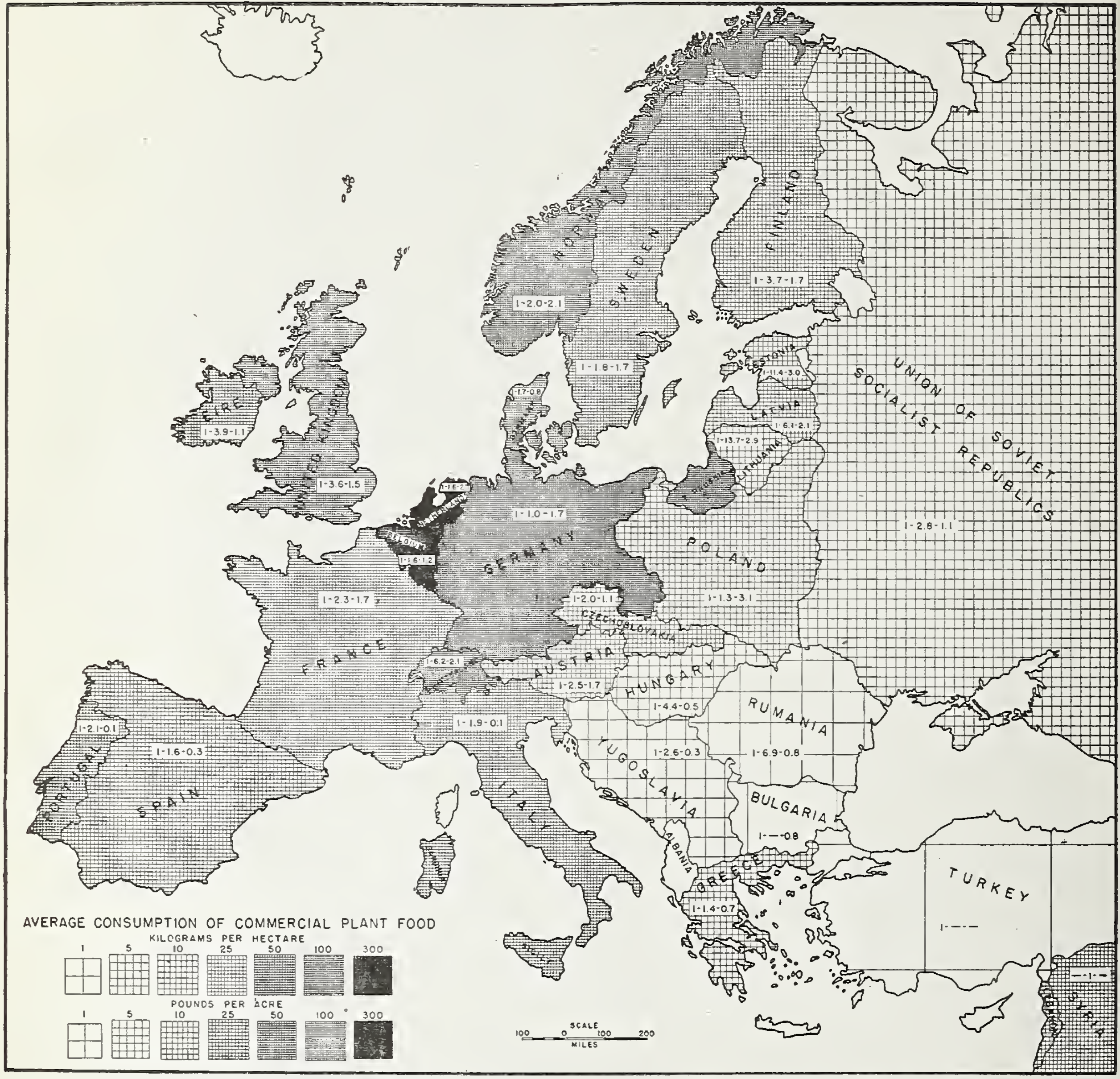

FIGURE 5.—Apparent average annual consumption of commercial plant food per unit area of arable land and ratio of use of nitrogen, phosphoric acid, and potash in Europe. (Based largely on data for 1936–38 and 1937–39.)

were 100 to 600 tons of sodium nitrate, about 100 tons of potassium nitrate, and lesser quantities of potassium chloride and sulfate. Bones and bonemeal exports ranged from 1,000 to 2,000 tons.

CZECHOSLOVAKIA

Beginning with 1935, production and consumption figures were not given by individual commodities for Czechoslovakia. Nitrogenous materials, equivalent to more than 22,000 tons N, were reported either as ammonium sulfate or as calcium nitrate, depending upon whether the nitrogen was in ammonia or nitrate form. Similarly, water-soluble forms of phosphoric acid were classed as superphosphates, and water-insoluble forms as basic slag. Evaluations of production and consumption data for plant-food content therefore are subject to error, since weighted values for the nitrogen and phosphoric acid content were not available.

The tonnages reported under ammonium sulfate comprised the totals for cyanamide, ammonium sulfate, nitrochalk, and urea, half the tonnage of Ostrava saltpeter, and three-fourths the tonnage of Semtin supersaltpeter. The inclusion of nitrochalk in the ammonium sulfate category apparently resulted from an error in translation of the designation "Chaux ammoniacale" which refers to "Kalkammoniak," a mixture of approximately 2 parts ammonium chloride and 1 part calcium carbonate. Nitrochalk is a mixture of ammonium nitrate and calcium carbonate and as such contains half its nitrogen in the nitrate form. Ostrava saltpeter is similar to nitrochalk in respect to the proportion of total nitrogen carried in the two forms, but in one case (*25, p. 74*) is described as a mixture of calcium nitrate and ammonium sulfate and in another (*15*) as a product containing 7.75 percent ammonia nitrogen, 7.75 nitrate nitrogen, and 31 percent lime. A mixture of ammonium nitrate and calcium sulfate, marketed in France under the name "Ammonitre" or "Sulfonitrate de chaux et d'ammoniaque," would be equivalent to and probably more economically prepared than the mixture of calcium nitrate and ammonium sulfate. Neither of the mixtures prepared from sulfates could carry sufficient calcium to give the required percentage of lime. Ostrava saltpeter, therefore, appears to be a mixture of approximately 4 parts ammonium nitrate with 5 parts calcium carbonate, similar to if not identical with the nitrochalk produced in the United Kingdom.

Likewise, Semtin supersaltpeter, which has the same nitrogen content (26 percent) and the same ammonia nitrogen to nitrate nitrogen ratio as the double salt of ammonium nitrate and ammonium sulfate marketed in Germany under the names "Ammonsulfatsalpeter" and "Leuna-Montan," appears to contain about 3 parts ammonium nitrate to 5 parts ammonium sulfate. Two grades of the Semtin material were reported marketed; the lower grade carried about 17 percent nitrogen and 20 percent lime, equivalent to a mixture containing about 35 percent calcium carbonate and 65 percent of the higher grade.

The production of superphosphate amounted to about 146,600 tons a year, practically all of which was used within the country. Basic slag production, including other phosphatic fertilizers not soluble in water, amounted to approximately 157,400 tons yearly, with about 90 percent retained for domestic use. Imports of phosphate rock appeared to average about 99,800 tons annually.

Czechoslovakia imported all its potash materials; annual consumption averaged 28,100 tons K_2O.

DENMARK

Superphosphate is the only fertilizer material in Denmark for which production data were recorded, although it is believed that there was a small production of byproduct sulfate of ammonia and ammonium chloride at gas plants. An average of 356,000 tons of superphosphate was produced from imported rock in 1937, 1938, and 1939. In addition to this production, an average of 16,100 tons was imported for consumption. Imports of basic slag averaged only about 1,200 tons in the same period. Net exports of bones were about 600 tons a year.

Denmark imported an average of 124,700 tons of calcium nitrate a year, which accounted for almost half the nitrogen consumed. The rest was almost equally divided between 65,100 tons of sodium nitrate and 50,400 tons of ammonium sulfate, with a small quantity supplied by the annual average of 2,300 tons of cyanamide.

All potash materials imported were included under unspecified potash salts. The average annual imports totaled about 107,500 tons of materials.

ERIE (IRELAND)

Eire produced about 7 percent of the 2,200 tons of ammonium sulfate consumed each year.

Phosphate rock was imported for the production of 95 percent of the 145,100 tons of superphosphate used each year. In addition, about 3,000 tons of rock appeared to be used directly in agriculture. Only about 1,500 tons of basic slag was produced yearly, although the average consumption was nearly 20,000 tons.

Imports supplied all the potash used, or about 7,500 tons K_2O annually.

ESTONIA

In Estonia, average annual imports of 3,300 tons of calcium nitrate supplied approximately 55 percent of the chemical nitrogen used in agriculture. The remaining 45 percent was nearly equally distributed between ammonium sulfate, 700 tons; cyanamide, 700; and sodium nitrate, 800.

Phosphate rock was the only fertilizer material for which production data were given. Presumably this material was used directly in agriculture, since it was recorded as consumed and the recorded consumption of superphosphate referred only to net imports. The domestic production of about 11,500 tons of phosphate rock each year supplied about 30 percent of the phosphoric acid consumed. The rest was supplied by imports of superphosphate, which averaged 39,600 tons.

All potash materials were imported. Imports averaged 6,900 tons of unspecified materials, whereas consumption was given in terms of K_2O and averaged 2,700 tons.

FINLAND

Finland manufactured 55 to 60 percent of its superphosphate requirements from imported rock. The rest of the superphosphate and all other fertilizer materials were imported.

Annual imports of calcium nitrate averaged 31,300 tons and supplied two-thirds of the nitrogen used. Imports of 7,100 tons of sodium nitrate and 4,400 of ammonium sulfate supplied about one-seventh and one-eighth of the nitrogen, respectively. Imports of cyanamide and ammonium nitrate were much smaller, but added about 255 tons of nitrogen a year.

Net imports of superphosphate averaged about 42,400 tons annually. Imports of basic slag (29,600 tons) and bonemeal (17,200 tons) each supplied 14 to 18 percent of the phosphoric acid consumed. The difference between the recorded and apparent consumption of nitrogen and phosphoric acid is due almost entirely to the plant-food content of the bonemeal imports, which were not recorded as consumed in agriculture and may have been consumed in other industries.

Most of the potash imported for consumption was classed under unspecified materials, but consumption figures, given in terms of K_2O, exceeded 15,000 tons per annum.

FRANCE

France was one of the world's major producers of synthetic and byproduct nitrogen. In 1940 (*31*) the industry was reported to comprise 35 plants for the production of synthetic nitrogen, with an annual capacity of 200,000 tons and facilities for the production of byproduct nitrogen equivalent to an additional 100,000 tons. Total domestic production appears to have averaged almost 120,000 tons in the 3-year period 1936–38, or only about 80 percent of fertilizer requirements. Sodium nitrate was the principal nitrogen material imported; nearly 132,000 tons were received from Chile each year. Net imports of ammonium sulfate also amounted to 17,800 tons.

This country had an annual production of 80,000 tons of natural phosphates, which appeared to be used largely for direct application to the soil. North African sources supplied most of the phosphate rock from which 1,228,300 tons of superphosphate were produced. The steel industry produced more than a million tons of basic slag annually, and about 30 percent of this was available for export.

Prior to World War II, France was a member of the European Potash Cartel and as such was allotted 30 percent of the world trade in potash salts. Potash salts derived from the Alsatian deposits and basic slag constituted the only fertilizer materials that France exported in quantity.

In 1938 Hegelbacher (*10*) reviewed the consumption of chemical fertilizers in France for 1913 and 1928–37. Estimates of the consumption of nitrogen and phosphoric acid derived from statistics of the IYAS for 1936 and 1937 averaged about 10 percent below those cited by Hegelbacher; those for potash were about 11 percent lower than his for 1937 and the same percentage higher for 1938.

GERMANY

Germany was the largest producer and exporter of nitrogen and potash materials in the world. It possessed only minor reserves of phosphates, however, and was dependent upon foreign sources for its supply. In addition to producing 2.2 to 2.5 million tons of basic slag annually, about 1 million tons of phosphate rock for superphosphate production, 20,000 to 40,000 tons of superphosphate, and about 500,000 tons of basic slag were imported.

Consumption data have not been given since 1934 for fertilizer materials other than pure potash, basic slag, and imported sodium nitrate. As a result the reported consumption figure for nitrogen represents only the nitrogen content of sodium nitrate imports. Similarly, the reported consumption of phosphoric acid refers only to the P_2O_5 content of basic slag. The apparent consumption of nitrogen was derived largely from trade and consumption statistics for the period 1930–34. This value is probably somewhat lower than the actual figure because it does not take into account the nitrogen consumed as calcium or potassium nitrates or the ammonium sulfate used in the production of mixed fertilizers. The apparent consumption of phosphoric acid also is probably somewhat lower than the actual figure for similar reasons. The discrepancies introduced by omission of the plant-food content of mixed fertilizers, however, are much less serious in the case of most European countries, where relatively little of the total supply of plant food has been marketed in the type of mixture common to the United States.

Data are available from publications of the Stickstoff-Syndikat [5] and the United States Bureau of Mines (*22*) on the consumption of plant food in Germany in recent prewar years, and these are compared with the data derived from the IYAS in table 1.

GREECE

Greece was dependent upon imports for nitrogen and potash materials. Consumption figures equaled the net imports of about 5,200 tons N and 3,600 tons K_2O.

Almost 78 percent of the nitrogen was imported as ammonium sulfate and 19 percent as sodium nitrate. Ammonium, potassium, and calcium nitrates made up the rest of the imports recorded.

An average of almost 10,300 tons of superphosphate was produced each year, and about 28 percent of this was exported. It was the only material listed under production and export, and although no import figures were given, the phosphate rock

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[5] See footnote 3, p. 6.

Table 1.—*Comparison of estimates of plant-food consumption in Germany, 1934–39*

Year or season	N			P_2O_5			K_2O		
	Stickstoff-Syndikat [1]	Bureau of Mines [2]	IYAS [3]	Stickstoff-Syndikat [1]	Bureau of Mines [2]	IYAS [3]	Stickstoff-Syndikat [1]	Bureau of Mines [2]	IYAS [3]
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*
1934–35	425	427		545	561		817	819	
1935			548			527			909
1935–36	491	491		636	652		949	944	
1936			597			550			968
1936–37	571	571		626	631		954	957	
1937			569			615			974
1937–38	633	634			691			1,153	
1938–39		718			749			1,254	

[1] Data from Stickstoff-Syndikat. (See footnote 3, p. 6.)
[2] Data published by U. S. Bureau of Mines (*22*).
[3] Data from table 6, p. 41.

came principally from North Africa. Nevros (*20, 21*) reported that in addition to the manufacture of ordinary superphosphate (16 percent P_2O_5), both mono- and diammonium phosphates and superphosphates containing 24 and 46 to 48 percent P_2O_5 were produced. The phosphoric acid required for the production of these materials was reported produced from imported rock and domestically produced sulfuric acid, while the nitrogen was imported as aqua ammonia.

Potassium sulfate was the principal potash material imported, but small quantities of chloride and nitrate were noted. The consumption that was listed as crude salts was the sum of the tonnages of items imported.

HUNGARY

According to Vály (*32*) and von Istók (*13*), Hungary constructed a synthetic nitrogen plant at Pétfuerdo in 1932 to render the country independent of foreign sources of fertilizer nitrogen. The capacity of the plant was estimated at 40,000 tons a year of an ammonium nitrate fertilizer called "Peti so," containing about 17 percent N and composed of about equal parts of ammonium nitrate and calcium carbonate. Prior to the production of this material, imported cyanamide had been the principal source of nitrogen, but to foster the use of the new domestic product, imports of the former were restricted and agricultural requirements were supplied almost entirely by "Peti so" and the relatively small domestic production of byproduct ammonium sulfate. By 1937 domestic consumption of "Peti so" had increased to a little more than 10,000 tons, and exports were said to have ranged from 25,000 to 28,000 tons a year since 1932. The IYAS apparently included exports of "Peti so" as ammonium nitrate in the ammonium sulfate classification and consumption as "lime nitrate of ammonia" in the ammonium nitrate classification, but gave no data relating to its production.

Although imports of fertilizers other than potash carriers have been forbidden since 1931 (*6*), data on the consumption of superphosphate usually exceeded production figures by almost 20 percent, or more than 10,000 tons of superphosphate annually.

Imports of potash were recorded as potassium chloride, but included small quantities of potassium sulfate. Some potash was produced as a byproduct of the distillery industry, but the quantity was small (*16*) and no data on it were given by the IYAS. Consumption was recorded in terms of K_2O and averaged 1,000 tons a year.

ITALY

Before the war Italy possessed a large and varied nitrogen industry. The production of synthetic nitrogen was carried out in 12 plants, ranging in daily capacity from 3 to 120 tons of ammonia and totaling 446 tons, equivalent to 367 tons of nitrogen a day, or approximately 125,000 to 130,000 tons a year (*8*). An average of 173,200 tons of ammonium sulfate, 101,700 of calcium nitrate, 175,800 of cyanamide, and 10,000 tons of sodium nitrate was produced each year. Nevertheless, considerable tonnages of each were imported, equivalent apparently to 30 percent of the nitrogen requirements. In comparison, nitrogen exports were negligible, the largest being 800 tons of ammonium sulfate.

The only other fertilizer material recorded as produced in Italy was superphosphate, for the production of which more than 850,000 tons of phosphate rock was brought in each year from North Africa. Italy had no net exports of superphosphate and consumed more than 1.4 million tons a year. In addition, it used 14,500 tons or more of phosphate rock for direct application annually and imported about 2,000 tons P_2O_5 as basic slag.

Consumption of potash was given in terms of K_2O, while most of the import tonnages were listed as unspecified potash fertilizers. In the past, trade journals have reported attempts to establish a potash industry based on the utilization of volcanic deposits of leucite. These efforts seem to have been unsuccessful, since no production was recorded. Small tonnages of leucite, however, have been reported used for direct application, and there was an unrecorded small production of byproduct potash from sugar factories.

Official statistics relating to each of the several fertilizer materials and plant foods in the 16 Compartments and Sicily and Sardinia were published annually in the Annuario Statistico Italiano (*11*). The present evaluations of plant-food consumption based on the data of the IYAS are compared with those of the "Annuario" in table 2. The discrepancy in the P_2O_5 estimates appears to be due to the use of different values for the phosphoric acid content of superphosphate.

TABLE 2.—*Comparison of estimates of plant-food consumption in Italy, 1936–38*

Year	N		P_2O_5		K_2O	
	IYAS [1]	Annuario [2]	IYAS [1]	Annuario [2]	IYAS [1]	Annuario [2]
	1,000 metric tons	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*	*1,000 metric tons*
1936	88.1	87.0	209.8	247.2	8.4	11.2
1937	137.5	126.6	216.7	259.4	17.2	15.8
1938	123.1	120.4	231.9	279.0	17.9	17.8
Average	116.2	111.3	219.5	261.9	14.5	14.9

[1] Data from table 6, p. 41.
[2] Data from Annuario Statistico Italiano (*11*).

LATVIA

Latvia produced about 78 percent of its phosphate requirements, largely from imported materials. Production of superphosphate amounted to about 100,000 tons a year from imported rock. An additional 10,000 tons of superphosphate were purchased abroad. About 1,300 tons of basic slag was manufactured, but this was only 5 percent of the consumption of this item.

Calcium nitrate accounted for 43 percent of the nitrogen imports, sodium nitrate 32 percent, and ammonium sulfate made up the remainder. Bonemeal was the only material exported, but the production data were not given.

The annual consumption of potash, listed in terms of K_2O, was about 7.800 tons. Imports were classified principally as unspecified potash fertilizers.

LITHUANIA

Superphosphate was the only material listed under production for Lithuania, and it was made from imported rock. Almost 84 percent of the 16,000 tons consumed annually, however, was imported. Basic-slag consumption, about 7,900 tons a year, equaled imports; no production was recorded, and therefore exports of 3,900 tons cast some doubt on the validity of the reported consumption. Because of this, net imports were used in evaluating the apparent consumption of phosphoric acid from this source.

About 6,200 tons of calcium nitrate was brought into Lithuania each year and served as 78 percent of the nitrogen used. Less than 100 tons of nitrogen was supplied annually by imports of each of the following: Ammonium sulfate, cyanamide, and potassium and sodium nitrates.

Potash consumption, given in terms of crude salts, was the sum of the materials itemized under imports.

NETHERLANDS

An annual production of about 275,000 tons of ammonium sulfate, 63,000 of calcium nitrate, and 550,000 tons of superphosphate was shown for the Netherlands. The calcium nitrate category probably was composed largely of ammonium nitrate and calcium carbonate mixtures. Production statistics for other commodities were not given. Ammonium sulfate and calcium nitrate were produced in excess of domestic requirements. These materials supplied about 40 percent of the nitrogen used in agriculture, while 60 percent was supplied by imports of ammonium nitrate mixtures (Leuna-Montan and Cal-Nitro), cyanamide, and sodium nitrate. More than 41,000 tons of materials classified as guano, including other animal manures, was exported each year.

Nearly equal quantities (approximately 400,000 tons) of phosphate rock and basic slag were imported yearly. Exports of superphosphate, however, averaged 370,000 tons, so that nearly three-fourths of the phosphate requirement was met with basic slag.

All potash was obtained from foreign sources. Unspecified materials, probably for the most part 40-percent manure salts, accounted for 80 percent of the potash imported. Sulfate forms accounted for about 15 percent, and the rest was made up of high-grade muriate, potassium nitrate, and low-grade salts, in decreasing order.

NORWAY

Norway was a large producer of nitrogenous fertilizer materials. The annual output of calcium nitrate, or Norwegian saltpeter, approximated 335,000 tons. Two grades were produced—13- and 15.5-percent nitrogen. The 13-percent grade was prepared by acidulation of limestone with nitric acid; the 15.5-percent grade usually contained 14.5 percent nitrate-nitrogen and 1 percent ammonia-nitrogen. It was prepared by overacidulation of limestone with nitric acid and neutralization of the excess acid with free ammonia. The sum of the exports and consumption of these calcium nitrate products consistently exceeded the reported production by approximately 90,000 tons. Presumably exports of ammonium nitrate-limestone mixtures (Cal-Nitro), for which no production data were given, were included in this category and accounted for the apparent discrepancy in the statistics.

Nearly 4,000 tons of cyanamide, 20,000 tons of sodium nitrate, and 4,500 tons of ammonium sulfate were also produced each year. Exports of ammonium nitrate, bonemeal, and fish guano, for which production statistics were not given, contained about 1,500 tons of nitrogen. In general, about 10 percent of the reported production of nitrogen was also reported consumed.

This country was dependent upon foreign sources for its phosphate and potash supply. Somewhat more than two-thirds of the 75,000 tons of superphosphate consumed was imported, and the rest was produced from foreign rock. Each year 5,000 to 9,000 tons of basic slag was brought in for consumption, and more than 15,000 tons K_2O was consumed.

POLAND

Poland produced both nitrogen and potash in excess of its own requirements. About one-third of the 35,451 tons of nitrogen and 16 percent of the 97,433 tons of potash produced were exported. The principal nitrogen exports were ammonium sulfate and calcium nitrate (probably mixtures of ammonium nitrate and limestone). Nearly 45 percent of the 26,100 tons of nitrogen consumed was attributed to cyanamide. The major part of the potash exports was classed as kainite, carnallite, and sylvinite. More than 81,000 tons K_2O was consumed each year.

Poland produced several thousand tons of phosphate rock but imported nearly 150,000 tons annually. Some of this was reexported as superphosphate, since exports of this material averaged 20,000 to 25,000 tons. Basic slag was imported for consumption in quantities ranging from 60,000 to 70,000 tons.

PORTUGAL

Superphosphate was the only fertilizer material for which production data were given; the rock required was imported. It was also the only phosphate material consumed, and consumption averaged more than 200,000 tons a year.

Ammonium sulfate was the most popular nitrogen carrier. This material supplied 84 percent of the 15,755 tons of nitrogen used, sodium nitrate furnished 10 percent, and cyanamide and calcium nitrate the rest.

The greater part of the more than 1,000 tons K_2O consumed each year was supplied by imports of potassium sulfate.

RUMANIA

Rumania's consumption of fertilizers per unit area was next to the lowest in Europe. Production data were given only occasionally, although Dobresco (*7*) reported that byproduct ammonium sulfate, cyanamide, bone and mineral superphosphates, dicalcium phosphate, basic slag, and phosphatic guano were produced.

Annual imports of ammonium sulfate and sodium nitrate averaged 500 to 700 tons, respectively.

Bonemeal, the only fertilizer material exported, averaged 600 tons yearly. Reported imports of phosphate rock were too small to produce the average of 9,000 tons of superphosphate indicated.

The annual imports and consumption of potash materials were less than 200 tons K_2O.

SPAIN

Production of ammonium sulfate, phosphate rock, superphosphate, and pure potash were given for Spain through 1935 only. Beginning with 1934, the data on consumption of ammonium sulfate represented only net imports. On the average, Spain produced about 3 to 4 percent of its nitrogen requirements.

The domestic production of phosphate rock approximated 15,000 to 20,000 tons in comparison with annual imports of 550,000 to 600,000 tons. About 4,000 tons of rock were used for direct application each year. In 1935 a consumption of 1,074,000 tons of superphosphate put Spain among the world's five largest consumers of this commodity. It was also among the five leading producers, with production totaling 1,065,000 tons.

This country was formerly a member of the European Potash Cartel and as such was allotted 15 percent of the world trade in potash. Production of potash rose from 91,100 tons K_2O in 1933 to 139,600 in 1934, but declined to 121,300 tons in 1935 at the start of Spain's civil war. Of these quantities 75 to 85 percent was available for export.

SWEDEN

The production of nitrogen materials was not itemized for Sweden, but 7,300 tons was given as the total nitrogen produced each year. With the exception of ammonium sulfate the data for net imports and consumption of most nitrogen materials were identical. The apparent consumption of nitrogen, therefore, differs from the recorded value only by the nitrogen content of materials imported but not classified as consumed, such as bones, guano, and potassium nitrate.

The consumption of basic slag was about 17,100 tons annually, with domestic production nearly 94 percent of this total. Superphosphate production averaged 238,400 tons a year, largely from imported rock.

All potash materials, equivalent to almost 48,000 tons K_2O annually, were obtained from foreign sources.

SWITZERLAND

The IYAS statistics for Switzerland for nitrogen materials and superphosphate were difficult to evaluate: (a) Data for the production of cyanamide in 1936 and 1938, for the consumption of superphosphate in 1936, and for the consumption of cyanamide and sodium nitrate in 1936, 1937, and 1938 were missing; (b) exports of calcium nitrate were erroneously listed as exports of sodium nitrate in 1934 to 1938, inclusive; (c) cyanamide consumption data also included calcium nitrate; (d) import and export statistics for ammonium sulfate included unspecified ammonium salts; and (e) the visible supply of superphosphate was less than the reported consumption for the period 1934–38.

Production data were given only for ammonium sulfate, cyanamide, and superphosphate, although 17,700 to 21,300 tons of calcium nitrate was exported annually. Furthermore, cyanamide was omitted from the trade statistics, even though the consumption recorded over the 6-year period 1930–35 amounted to only 35 percent of production. The recorded consumption of nitrogen was the nitrogen content of ammonium sulfate only, and the apparent consumption was largely estimated, owing to the lack of recorded data.

Imports of basic slag accounted for almost 81 percent of the phosphate consumed in Switzerland. In the case of superphosphate the visible supply for the period 1934–38 was 86,700 tons, in comparison with a recorded consumption of 87,200 tons, exclusive of 1936, for which year the consumption data were omitted. Because of this discrepancy superphosphate consumption for 1936 was estimated so as to give an average annual consumption for 1936–38 equal to the average annual visible supply for 1934–38. The difference between the recorded and apparent consumption of phosphoric acid is due to net imports of bones and guano not being reported as consumed.

Consumption of potash was recorded in terms of K_2O and is in good agreement with the estimated potash content of the individual commodities.

UNION OF SOVIET SOCIALIST REPUBLICS

Production and consumption figures for the Soviet Union were given for all nitrogen and potash fertilizers in equivalents of ammonium sulfate and K_2O, respectively.

About 140,000 tons N was consumed annually. Four entries were made for phosphate rock production, namely, phosphorites, concentrated phosphorites or ground phosphates, apatites of Khibine, and concentrated apatites. Presumably the data for phosphorites and apatites of Khibine represented crude materials, and those for concentrated phosphorites and concentrated apatites, the materials prepared for direct use or further processing. Since production figures for ground phosphates (concentrated phosphorites) were also reported under consumption, it appears likely that this material was used for direct application to the soil. The concentrated apatites, however, were used for the manufacture of superphosphates. Estimates of phosphoric acid consumed in agriculture, therefore, include the P_2O_5 contents of both ground phosphates and superphosphates. About 387,000 tons P_2O_5 was consumed a year.

Potash production from the Solikamsk and Berezniki deposits appears to have been about 35 percent in excess of the domestic requirements of about 150,000 tons K_2O per year.

UNITED KINGDOM

Production statistics were limited to ammonium sulfate, basic slag, and superphosphate for the United Kingdom, although it is known that a mixture of ammonium nitrate and calcium carbonate was produced.

In recent years the United Kingdom has produced more than 500,000 tons of ammonium sulfate a year. This quantity would supply the British Isles with more than twice the total nitrogen listed as employed in agriculture. Sixty percent of the ammonium sulfate output was exported, 37 percent was reported consumed, and 3 percent was unaccounted for. Most of the discrepancy between the recorded and apparent consumption of nitrogen is due to the part not accounted for. The annual consumption of ammonium sulfate of almost 36,500 tons represented more than 81 percent of the nitrogen used in the United Kingdom. Imports of sodium nitrate supplied more than 15 percent, and the rest consumed was derived from imported calcium and potassium nitrates, cyanamide, guano, bones, and bonemeal. Nearly 5,600 tons of nitrogen was exported as ammonium nitrate and artificial guano.

The United Kingdom produced an average of 383,000 tons of basic slag each year and exported about 162,000 tons. The sum of the reported consumption and the exports of basic slag have exceeded production by more than 36 percent for several years. On the other hand, production of superphosphate exceeded the sum of reported consumption and exports by an average of almost 11,500 tons. The 164,000 tons of phosphoric acid reported as consumed annually in agriculture, however, was nearly equally divided between basic slag, superphosphate, and phosphate rock. Guano, bones, and bonemeal equivalent to 4,300 tons P_2O_5 were imported but not registered as consumed.

The United Kingdom was entirely dependent upon foreign sources for its potash requirements of nearly 76,000 tons K_2O. The Dead Sea was the principal source of potash within the British Empire, but its total output could supply only about half the 75,700 tons of chloride brought into the British Isles each year. Moreover, the chloride accounted for only 55 percent of the total potash consumption. Potash requirements, therefore, were obtained principally from France and Germany.

YUGOSLAVIA

Yugoslavia produced about 41,000 tons of cyanamide, but the IYAS showed only 3 percent of it for domestic use. About 2,500 tons of ammonium nitrate was imported to supply 61 percent of the nitrogen consumed. Moderate quantities of ammonium sulfate, sodium nitrate, basic slag, and potash salts were imported for consumption. Superphosphate was manufactured from imported rock. The average output of 24,700 tons was consumed domestically.

North America

For the countries in North America for which data were available the apparent average annual consumption of commercial plant food per unit area of arable land and the ratio of the use of nitrogen, phosphoric acid, and potash are shown in figure 6.

BARBADOS

The only data available for Barbados were trade statistics indicating an apparent annual consumption of 1,363 tons of nitrogen. Imports of ammonium sulfate supplied more than 97 percent of this quantity, and sodium nitrate supplied the rest.

CANADA

Data on the production of ammonium sulfate, cyanamide, and superphosphate were given for

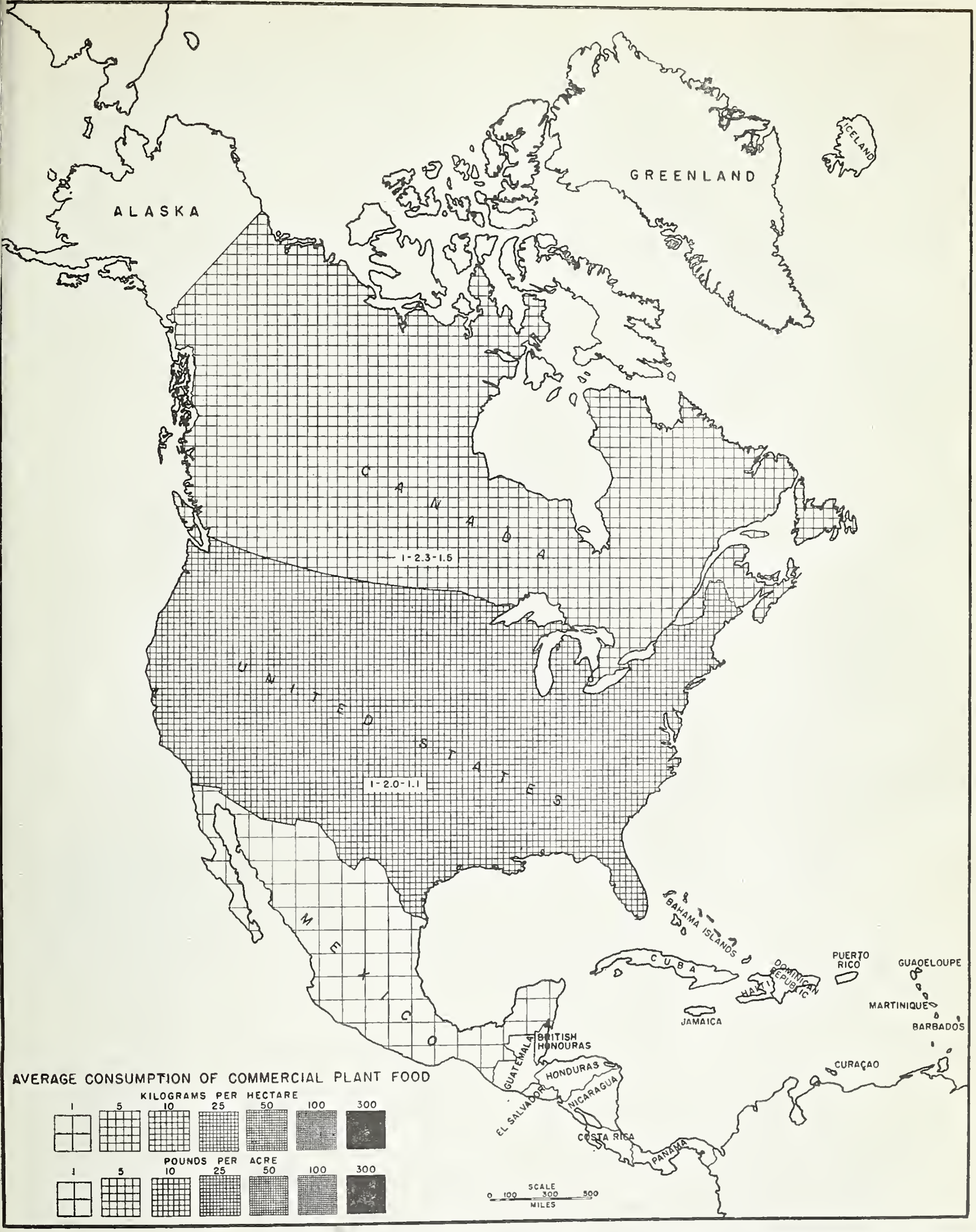

Figure 6.—Apparent average annual consumption of commercial plant food per unit area of arable land and ratio of use of nitrogen, phosphoric acid, and potash in North America. (Based largely on data for 1937–39.)

Canada. Production, consumption, and trade data for ammonium phosphates, however, were omitted, although the manufacture of these materials constituted an important part of the fertilizer industry. Almost all the phosphate rock required for the manufacture of superphosphates and ammonium phosphates was imported.

Wide discrepancies exist between the reported and the apparent consumption of nitrogen, phosphoric acid, and potash, as determined from the data of the IYAS. The consumption data listed applied only to the tonnages of the various materials sold for direct application or home mixing and did not include any quantities consumed in commercially mixed fertilizers. Also, in the case of superphosphates sold separately, the tonnages reported represented the total quantities of all grades, with no indication of the average phosphoric acid content. In the absence of definite information 20-percent P_2O_5 was chosen for evaluation of the plant-food content of this item.

The IYAS recorded the total tonnages of mixed fertilizers consumed in Canada for each agricultural year. Since there was no basis for estimating the average analysis, however, the equivalent plant-food content was not included in the recorded consumption figures. The apparent consumption figures consequently represent more accurately the probable consumption of plant foods, but even these values cannot be considered reliable in view of the omissions noted.

Official statistics on the fertilizer trade in Canada have been published annually by the Dominion Bureau of Statistics (*2*, *3*, *4*). The nitrogen, phosphoric acid, and potash content of mixed fertilizers and fertilizer materials was itemized for each Province. The sales of plant food for consumption for the 5-year period 1938–42 are shown in table 3, prepared by conversion of the official statistics to metric tons.

TABLE 3.—*Plant foods sold for consumption in Canada, 1938–42, and 1938–39 average*

Year ended June 30	N	P_2O_5	K_2O
MIXED FERTILIZERS			
1938______metric tons	5,667.4	20,125.6	15,551.1
1939____________do___	5,925.2	21,947.6	16,699.0
1940____________do___	6,513.9	24,806.5	19,246.6
1941____________do___	6,294.6	23,839.1	18,060.5
1942____________do___	8,446.7	33,655.3	24,944.5
Average, 1938–39__	5,796.3	31,036.6	16,125.1
Increase (+) 1942 over 1938–39 ______percent	+45.7	+60.0	+54.7
FERTILIZER MATERIALS			
1938______metric tons	4,090.2	15,712.9	4,335.2
1939____________do___	4,011.6	14,499.0	4,654.6
1940____________do___	3,886.7	13,749.5	3,753.4
1941____________do___	3,163.9	11,762.0	3,623.2
1942____________do___	4,574.3	12,620.0	2,610.2
Average, 1938–39__	4,050.9	15,106.0	4,494.9
Increase (+) or decrease (−) 1942 over 1938–39 ______percent	+12.9	−16.5	−41.9
MIXED FERTILIZERS AND FERTILIZER MATERIAL			
1938______metric tons	9,757.6	35,838.5	19,886.3
1939____________do___	9,936.7	36,446.6	21,353.6
1940____________do___	10,400.5	38,556.0	22,900.0
1941____________do___	9,458.5	35,601.1	21,683.7
1942____________do___	13,021.0	46,275.3	27,554.7
Average, 1938–39__	9,847.2	36,142.6	20,620.0
Increase (+) 1942 over 1938–39 ___percent	+32.2	+28.0	+33.6

Comparison of these data with the values derived from the IYAS shows IYAS data for Canada to be unreliable for recorded consumption of fertilizer materials, except for potash. In this case the agreement is exact. The apparent consumption of phosphoric acid and of potash are of the correct order of magnitude, but the corresponding value for nitrogen is too high. These discrepancies are due to incomplete listings rather than to differences in the items reported.

CUBA

No production or consumption statistics were given for Cuba. Average annual imports of 1,400 tons of potassium nitrate and 1,800 tons of potassium sulfate were the only items listed.

Foreign Commerce and Navigation of the United States (*29*), hereafter abbreviated FCN, indicates that the annual exports to Cuba from the United States in the 3-year period 1937–39 ranged from 2,355 to 6,893 tons of ammonium sulfate, 422 to 1,113 of other nitrogenous chemical materials, 308 to 486 of nitrogenous organic waste materials, 11,142 to 15,864 of superphosphate, 64 to 122 of other phosphate materials, 849 to 2,712 of potassic fertilizer materials, 873 to 2,335 of nitrogenous phosphatic types, and 140 to 267 tons of prepared fertilizer mixtures.

GUADELOUPE

Imports of guano, superphosphate, and potassium sulfate were the only statistics available for Guadeloupe. The guano figures were noted to include other animal manures and were the only significant data. Imports of the other commodities were too small to have significant values assigned.

MARTINIQUE

No production data were recorded for Martinique. Sodium nitrate was the only fertilizer material that was listed as consumed, although it represented less than 2 percent of the nitrogen imported. A great variety of materials were brought into the island, but the quantities were small except for ammonium sulfate, which reached 8,400 tons in 1938. The apparent consumption of P_2O_5 seems low in relation to that of nitrogen and potash.

MEXICO

No production statistics were reported for Mexico. Ammonium sulfate, ammonium nitrate, and sodium nitrate, equivalent to an average of over

2,800 tons of nitrogen a year, were the only fertilizer compounds imported. Of these, sodium nitrate was the only one listed as consumed. Thus, the reported consumption of nitrogen is only 56 percent of the apparent consumption derived from the trade balance.

Guano, bones, and bonemeal were exported, but no other information was given on phosphate fertilizers.

FCN indicates that the United States exported the following tonnages of fertilizer materials to Mexico annually in the 3-year period 1937–39: Ammonium sulfate, 14 to 191; other nitrogenous chemical materials, 4,913 to 6,096; nitrogenous organic waste materials, 1 to 8; superphosphate, 59 to 216; other phosphate materials, 6 to 49; potassic fertilizer materials, 0 to 148; nitrogenous phosphatic types, 21 to 58; and prepared fertilizer mixtures, 2 to 54.

PUERTO RICO

The IYAS did not list the production or export of any fertilizer material for Puerto Rico. Consequently, imports are recorded as consumption, and identical values were obtained for recorded and apparent consumption, except for potash. In this case consumption was recorded in terms of K_2O, whereas the apparent consumption was derived by evaluation of the potash content of the imported salts. The values for apparent consumption of phosphoric acid, more than 4,600 tons per year, probably are low because only imported superphosphates were listed. Furthermore, all grades of superphosphate were included in a single category evaluated on the basis of 18-percent P_2O_5.

The peak year for fertilizer consumption since 1930 appears to have been 1937. The year 1939 showed greatly reduced imports from countries other than the United States and probably reflected unsettled world conditions.

For this island, Mehring and others (*17*, *18*, *19*) have tabulated plant-food consumption as 14,320 metric tons N, 6,322 P_2O_5, and 11,057 tons K_2O for 1939 and 14,796 N, 6,731 P_2O_5, and 12,066 K_2O for 1941, which are offered for comparison with the values derived from the IYAS.

UNITED STATES

The trade statistics for the United States listed in the IYAS variously include the foreign trade of Alaska, Puerto Rico, Hawaii, and the Virgin Islands. Since, with the exception of the entrance of superphosphates of foreign origin into Hawaii, trade with these territories was also itemized, statistics applicable to the continental United States were more or less readily derived.

The IYAS and FCN were in complete agreement as to the imports of the following commodities: Ammonium nitrate except ammonium nitrate mixtures, calcium nitrate, sodium nitrate, ammonium sulfate, cyanamide, guano, steamed or ground crude bones, bonemeal including precipitated bones, basic slag, phosphate rock, superphosphates, kainite, muriate of potash, and sulfate of potash, the total of refined and crude potassium nitrate including sodium and potassium nitrate mixtures. Complete agreement also existed for exports of ammonium sulfate, phosphate rock, and the total tonnage of potash fertilizers. Neither source recorded the export of any ammonium nitrate, ammonium nitrate mixtures, calcium nitrate, cyanamide, guano, basic slag, crude bones, or bonemeal.

The IYAS omitted from import statistics ammonium nitrate mixtures and the double sulfate of potash and magnesia. These omissions were partly counteracted in the evaluation of the plant-food content of imports (a) by inclusion of the imports of technical ammonium nitrate and (b) by omission of data on the reexport of foreign sodium nitrate and muriate of potash. FCN for 1938 indicated the following imports and reexports in metric tons: Imports—ammonium nitrate, 1,510; ammonium nitrate mixtures, 68,580; refined potassium nitrate, 945; crude potassium nitrate, 13,289; potassium-sodium nitrate mixtures, 40,363; and sulfate of potash-magnesia, 11,936. Reexports—sodium nitrate, 5,324; and muriate of potash, 1,397. Imports of potassium nitrate were evaluated at 13.75 percent N and 21.5 percent K_2O, to conform to the relative quantities of crude potassium nitrate and potassium-sodium nitrate mixtures indicated.

According to FCN technical-grade ammonium nitrate was imported principally from Belgium and Norway, only a few hundred pounds originating in Germany. In 1938 the average value in the countries of origin was $27.465 per short ton, or only 78.5 cents per unit of nitrogen. The value in United States ports probably was $52.50 to $55 a ton, or a little more than $1.50 per unit of nitrogen after payment of transportation charges and a duty of 1 cent per pound, or $20 a ton. During this period, however, the market price of this grade was $72 a ton, so that it is not likely that any entered the fertilizer trade. For comparison it is noted that fertilizer-grade ammonium nitrate, 32.5 percent N, presently is offered at $47.50 to $50 a short ton at producing points in Canada and the United States.

The total exports of phosphate rock from the United States, as recorded in the IYAS and in FCN, were in substantial agreement with the total shipments of United States rock as tabulated in the annual compilation of world shipments of phosphates by the Phosphate Export Association, New York and London. FCN and the association differed considerably, however, as to the destination of these exports. FCN credited shipments to the country of final destination if this information was available at the time of shipment; otherwise the shipment was credited to the country to which consigned. Presumably the association's statistics credited the shipment to the country of final destination.

The imports of 30-percent manure salts, wood ashes, and beet-root ashes, which were given separately in FCN, were combined and recorded as unspecified potash fertilizers in the IYAS.

Since 1932 the IYAS has omitted figures for United States production and consumption of sodium nitrate. The average annual production in 1930, 1931, and 1932 amounted to 539,700 tons, and this value was used as the estimate for 1937, 1938, and 1939. Production of urea and of ammonium nitrate-ammonia and urea-ammonia liquors was not recorded, and no estimate was made of the nitrogen content of these materials. IYAS statistics on the consumption of nitrogen were limited to ammonium sulfate, calcium cyanamide, and calcium nitrate. The tonnages specified included direct sales as well as the quantities consumed in mixed fertilizers. Although imports of guano and sodium nitrate were recorded, they were not carried forward under consumption. It is apparent from these considerations that the actual consumption of nitrogen was somewhat larger than the values given for recorded consumption in table 6.

The production of phosphate rock recorded by the IYAS was 5 to 9 percent greater than the United States world shipments of this commodity, as compiled by the Phosphate Export Association. The IYAS included all grades of superphosphates in a single item. In this case production statistics referred to total production, but the consumption data were only for superphosphates sold directly to consumers and did not include those quantities consumed in the manufacture of mixed fertilizers. The consumption of phosphate rock was given as the quantity estimated as available for direct use in agriculture. The recorded imports of basic slag were not entered with consumption data. Thus the figure derived for the apparent consumption of P_2O_5 is closer to the actual value than that derived from the data on consumption alone.

Figures for the production of potash materials in the United States were given only in terms of equivalent K_2O content. The figure for 1939 was omitted, but since the earlier figures were identical with those published in the Bureau of Mines Minerals Yearbook (*9*)[6] the value for 1939 was taken from that source. The data for the consumption of potash also were listed in terms of equivalent K_2O content. The values given by the IYAS were derived from the apparent consumption and the fraction thereof consumed in agriculture as stated in the Mines Yearbook. In that publication apparent consumption was calculated by subtracting exports from the sum of imports and producers' sales. Prior to the issue reviewing 1939, values for apparent consumption were low, as crude potassium nitrate, imported principally from Germany for fertilizer use, was included with the materials used chiefly in chemical industries. To correct this error it was necessary to add 5.3 and 6.3 thousand tons to the IYAS values for 1937 and 1938, respectively. These values were then adjusted for potash consumption in Puerto Rico and Hawaii in order to obtain consumption values for continental United States.

Mehring and coworkers (*17*, *18*, *19*) have published data on the consumption of plant food in the United States and its territories based on State reports of sales of fertilizers by grades, fertilizer analyses in State control bulletins, special questionnaires, and information from other sources. Turrentine (*24*) and Kieffer (*14*) have reported the sales of fertilizer potash in the United States. Data from these sources have been adjusted for the plant food consumed in Puerto Rico and Hawaii and converted to the metric basis to give the following tabulation (table 4) for comparison with table 6.

TABLE 4.—*Plant-food consumption and sales in continental United States, 1937–39, and average*

Year	Consumption [1]			Sales [2]
	N	P_2O_5	K_2O	K_2O
1937	344,295	709,134	356,693	392,438
1938	318,687	662,079	337,018	377,949
1939	323,836	697,624	345,738	297,210
Average	328,939	689,612	346,483	355,865

[1] Data from Mehring and others (*17*, *18*, *19*).
[2] Data from Turrentine (*24*) or Kieffer (*14*).

The values for recorded consumption of nitrogen and phosphoric acid (table 6) were low because, as previously mentioned, the data were incomplete. The apparent consumption of these plant foods, particularly the 3-year averages, are in good agreement with the data of table 4.

The values for recorded and apparent consumption of potash (table 6) are in good agreement for 1937 and 1938. The discrepancy between the figures for 1939 is due to the fact that contract deliveries for 1939 were not completed by December 31 of that year. With this exception the IYAS values for potash agreed with those from other sources for the years 1938 and 1939. Both of the IYAS values included changes in importers' stocks. The Mines Yearbook reported that additions to such stocks amounted to 79,000 short tons in 1937. Taking this into account, the figures 457,600 and 451,744 should be reduced by 71,667 each to 385,933 and 380,077, respectively. These adjusted values are in better agreement with those of Mehring, Turrentine, and Kieffer. The 3-year averages then become 346,044 and 329,535 tons for recorded and apparent consumption of potash, respectively. These corrected values were not entered in table 6, since they could not be derived from the data of the IYAS alone.

The data of Mehring and Vincent (*19*) were used in preparing figure 7 showing the consumption of commercial plant food per unit area of arable land, and the ratio of use of nitrogen, phosphoric acid, and potash for each State of the United States in 1941.

OCEANIA

ANGAUR ISLAND

The IYAS recorded the production of phosphate rock on Angaur Island and noted that the figures given were exports. The exports recorded in the trade statistics, however, run consistently higher than those given under production. According to the trade statistics, exports averaged 97,700 tons in the years 1935–37, whereas exports given under production averaged only 85,900 tons.

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[6] Data for 1937-41.

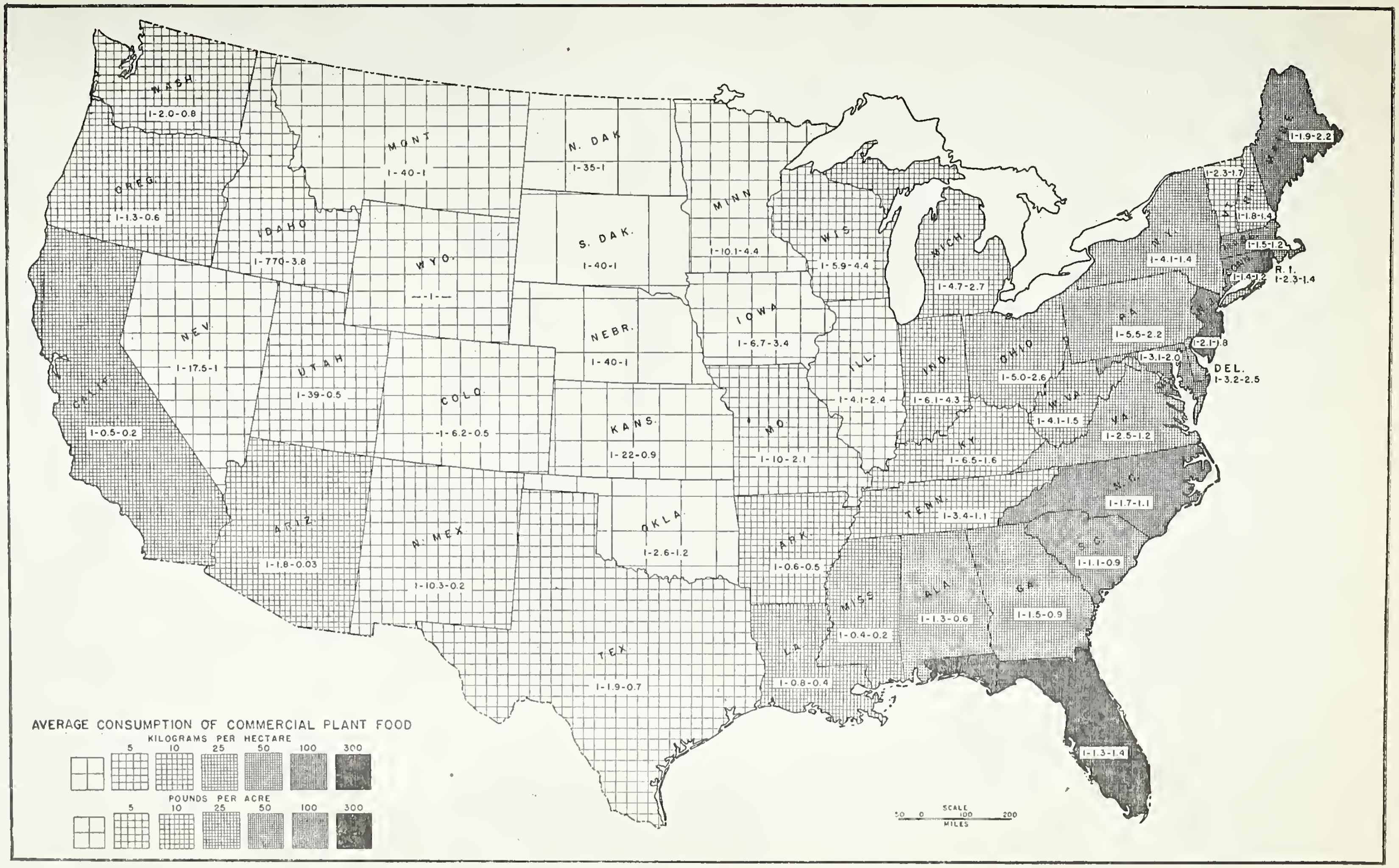

FIGURE 7.—Consumption of commercial plant food per unit area of arable land and ratio of use of nitrogen, phosphoric acid, and potash in the United States in 1941. (Based largely on the data of Mehring and Vincent (*19*) for plant-food consumption.)

AUSTRALIA

Australia produced an average of 18,700 tons of ammonium sulfate, besides importing 31,000 tons a year. Ammonium sulfate represented 83.6 percent of the nitrogen used. Ammonium and sodium nitrates, guano, and cyanamide also were imported for consumption.

The bulk of the import trade was made up of phosphate rock, an average of 704,100 tons of which was brought in to produce 1,217,300 tons of superphosphate annually. Practically all of this was for domestic consumption. Australia was among the five leading producers and consumers of available phosphates.

All the potash was imported. The sum of about 7,600 tons of potassium chloride, 3,900 of sulfate, and 300 of nitrate imported was listed as consumption.

HAWAII

Hawaii imported practically all its fertilizer materials. Import data were given for ammonium sulfate, sodium nitrate, and various potash materials, but the only phosphatic material included was bonemeal. More than half the ammonium sulfate, all the sodium nitrate and bonemeal, and much of the potash—particularly the nitrate and sulfate forms—were imported from countries other than the United States.

Evaluation of the IYAS data gave 13,612 tons N, 32 tons P_2O_5, and 10,597 tons K_2O as the average values for apparent consumption of these plant foods. The value for nitrogen is low and that for P_2O_5 much too low, because ammonium phosphate and other phosphate materials, known to be imported or produced in considerable tonnage, are not included in the IYAS. The apparent consumption of nitrogen exceeds the recorded value by the nitrogen content of potassium nitrate imports, which are not reported under consumption.

Consumption of potash is reported in terms of K_2O. Evaluation of the potash content of potassium nitrate imports was made on the basis of sodium-potassium nitrate mixtures in the absence of information as to the relative quantities of this grade and the 95-percent grade.

In comparison with table 6, Mehring and others (*17*, *18*, *19*) compiled data showing plant-food consumption to be 15,676 metric tons N, 6,423 P_2O_5, and 10,342 K_2O for 1939, and 16,443 tons N, 5,103 P_2O_5, and 10,092 K_2O for 1941.

MAKATEA

Makatea was an important producer of phosphate rock for export. Beginning in 1938 production figures were identical with exports. In 1937 and 1939, 163,200 and 160,700 tons, respectively, of rock were exported; for 1938 these figures dropped to 112,900 tons.

NAURU

Large tonnages of phosphate rock were produced on Nauru Island for export, the figures for 1937, 1938, and 1939 being, respectively, 700,000, 854,500, and 955,000 tons.

NEW ZEALAND

All fertilizer requirements of New Zealand were met by imports, although an average of 2,000 tons of bones was exported each year. About 304,400 tons of phosphate rock was brought in annually for the manufacture of superphosphate. This was the only production reported, and the entire output was used at home.

Ammonium sulfate, sodium nitrate, basic slag, and guano also were imported. The basic slag averaged 71,300 tons a year. Imports of 21,500 tons of guano were not listed as being consumed or reexported. The nitrogen and phosphoric acid therein accounted for the difference between the reported and apparent consumption figures for these plant foods.

The bulk of potash imports were unspecified potash fertilizers; consumption was given as the sum of the imports.

NOUVELLE CALÉDONIE (NEW CALEDONIA)

The IYAS recorded the production of phosphate rock and the export of identical tonnages of guano for Nouvelle Calédonie. Presumably only a single material, a leached phosphatic guano, was involved, and plant-food evaluations were made on that basis. Exports averaged 1,600 tons in the 3-year period 1936–38 and were estimated to contain 564 tons P_2O_5.

OCEAN ISLAND

At Ocean Island phosphate rock amounting to 399,300, 312,300, and 325,500 tons was produced and exported in the years 1937, 1938, and 1939, respectively.

South America

For countries in South America for which data were available, figure 8 gives the apparent average annual consumption of commercial plant food per unit area of arable land and the ratio of use of nitrogen, phosphoric acid, and potash.

ARGENTINA

Although data for the production of fertilizer materials in Argentina were not given, an average of 26,700 tons of guano and 69,200 tons of bones and bonemeal was exported each year. Presumably plant-food requirements were met largely through the use of these and other domestically produced materials not reported as consumed. Consequently, estimates of plant-food consumption are incomplete and unsatisfactory.

Net imports of sodium nitrate, averaging 3,200 tons annually, were recorded as consumed. About 300 tons of ammonium sulfate and 200 tons of potassium nitrate also were imported.

BRAZIL

The IYAS gave no data on the production of fertilizer commodities in Brazil. Recorded exports were limited to 5,000 to 10,000 tons of guano and about the same quantity of bones each year, al-

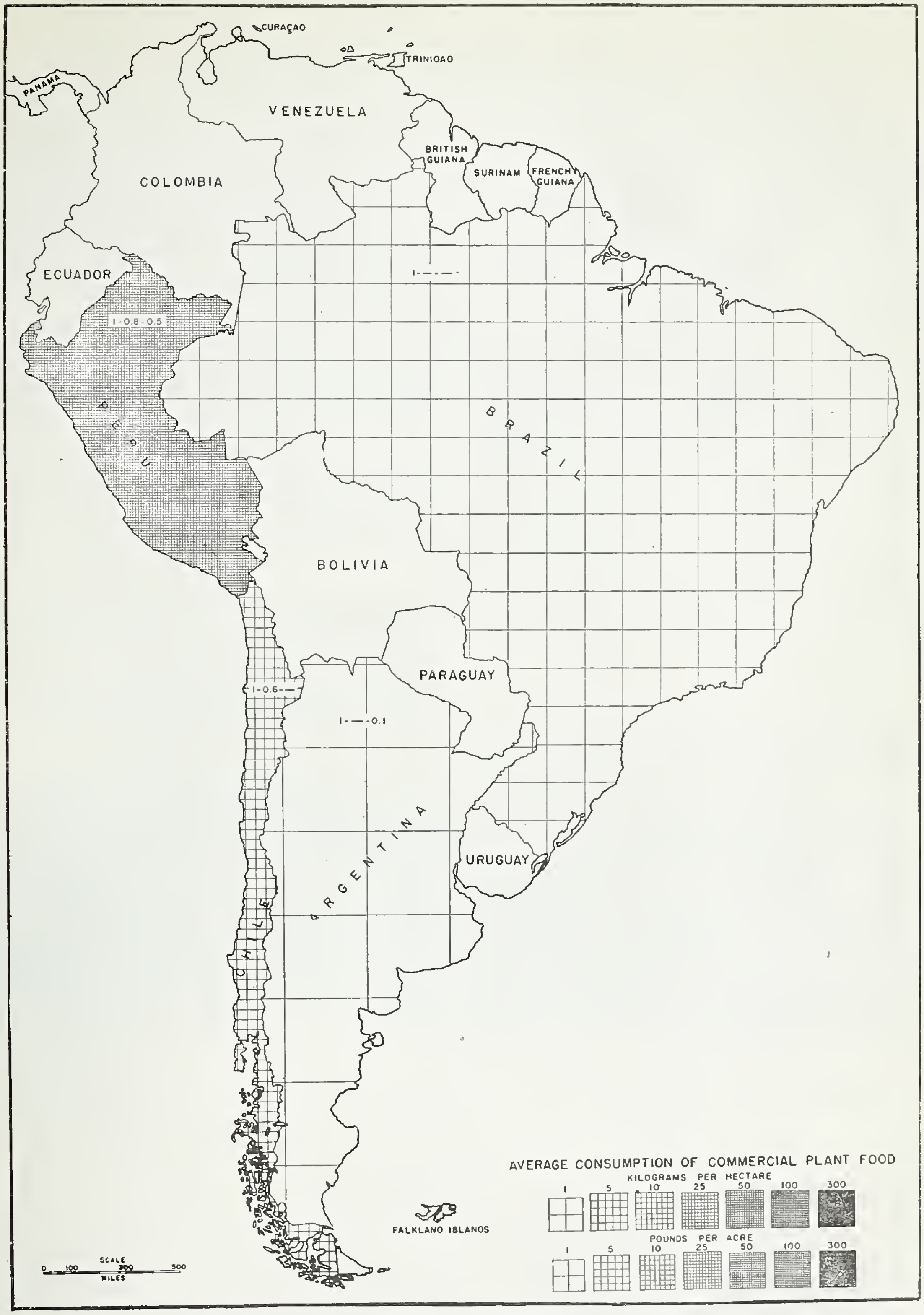

Figure 8.—Apparent average annual consumption of commercial plant food per unit area of arable land and ratio of use of nitrogen, phosphoric acid, and potash in South America. (Based largely on data for 1936-38 and 1937-39.)

though it is known that considerable tonnages of organic waste materials have been exported in the past for fertilizer use.

An average of 12,500 tons of sodium nitrate was imported annually. This was the only fertilizer material for which imports were recorded and also the only one reported as consumed. The estimates of plant-food consumption therefore are incomplete and unsatisfactory. Other sources (*5*, *26*) indicate that more than 20,000 tons of superphosphate, some 2,000 tons of ammonium sulfate, and about 4,000 tons of potash salts, in addition to smaller quantities of other materials, were imported for consumption each year.

BRITISH GUIANA

Phosphate rock imports for British Guiana were shown as follows: 1937, 4,600 tons; 1938, 3,800; 1939, 4,900. No other data were presented. According to Williams (*33*), fertilizer importations in 1937, 1938, and 1939 were as follows: Nitrogenous fertilizers (almost entirely sulfate of ammonia), 11,171, 10,205, and 11,720 tons, respectively; manurial lime and limestone, 4,537, 3,755, and 4,795; sulfate of potash, 160,234, and 90; and other fertilizers (mainly superphosphate and basic slag), 49,349, 46,587, and 42,742. It is noted that the figures given for manurial lime and limestone are essentially the same as those of the IYAS for phosphate rock.

CHILE

Chile was the largest producer of sodium nitrate in the world. The average annual production for the period 1936–38 was 1,368,100 tons. The exports consistently exceeded the reported production, owing to the reduction of large stock piles. Sodium nitrate also was the only fertilizer material listed under consumption. About 84,400 tons of guano was produced in 1936. Since that date a stringent law has protected the birds and limited the sales of guano. The large balance remaining after subtracting exports from production shows that most of the guano was consumed in Chile. This difference, coupled with the average importation of 3,700 tons of ammonium nitrate and small quantities of bonemeal, accounts for the apparent consumption of nitrogen being three times as large as the recorded consumption.

The IYAS did not list the production of superphosphate, but some is believed to have been produced from domestic apatite. Basic slag imports ranged from 4,600 to 7,300 tons a year, and superphosphate from 1,300 to 3,000. Data were not given for the consumption of phosphates, although the apparent consumption of guano alone was equivalent to an average of 4,521 tons P_2O_5 a year.

No data of any kind were given for potash materials. Considerable tonnages of sodium-potassium nitrate mixtures, however, were produced in conjunction with sodium nitrate operations.

CURACAO

Exports of phosphate rock from Curaçao amounted to 78,200 tons in 1936, 101,800 in 1937, and 99,300 in 1938. No other data were tabulated.

FALKLAND ISLANDS

The Falklands exported whale fertilizers as follows: 1936, 12,200 tons; 1937, 6,200; 1938, 5,200. No other data were given.

PERU

Peru produced an average of more than 160,000 tons of guano annually in 1937–39, but exported only 5 to 10 percent. During this same period annual imports of potassium sulfate were 13,000 to 29,000 tons. Potash materials were the only ones for which consumption data were recorded.

URUGUAY

No production, consumption, or import statistics were given for fertilizer materials. Uruguay, however, produced guano, bones, and bonemeal for the export trade and no doubt consumed small tonnages of these items as fertilizers. It is believed that annual consumption also included between 1,000 and 2,000 tons of superphosphate produced from imported materials. In recent years exports of bones have amounted to 2,900 to 4,500 tons, while those of bonemeal or of guano have seldom exceeded 1,000 tons.

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APPENDIX

TABLE 5.—*World production of commercial plant foods and phosphate rock, 3 recent prewar years, average, and relative rank*

Geographic division and unit and year	Plant food								Phosphate rock	
	Total		N		P_2O_5 [1]		K_2O			
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Africa										
Algeria:	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]
1936		[3] 6,612		[4] 84		6,528				531,000
1937		[3] 11,716		[4] 84		11,632				631,100
1938		[3] 12,884		84		12,800				584,500
Average	30	[5] 10,404	29	[5] 84	24	10,320			6	[6] 582,200
Egypt:										
1937		13,464		1,752		11,712				517,000
1938		8,688		0		8,688				458,400
1939		[3] 6,464		[4] 0		6,464				[7] 483,600
Average	33	[5] 9,539	26	[5] 584	26	8,955			7	[5] 486,333
French Morocco:										
1936		3,240				3,240				1,335,200
1937		5,580				5,580				1,378,000
1938		6,300				6,300				1,487,000
Average	39	5,040			33	5,040			4	[8] 1,400,067
Madagascar:										
1936										5,300
1937										4,300
1938										5,700
Average									21	[9] 5,100
Seychelles Islands:										
1936		7,170				[10] 7,170				
1937		2,880				[10] 2,880				
1938		6,510				[10] 6,510				
Average	38	5,520			32	[10] 5,520				
Tunisia:										
1936		3,264				3,264				1,488,000
1937		6,992				6,992				1,771,400
1938		7,312				7,312				2,034,200
Average	36	5,856			31	5,856			3	[11] 1,764,533
Union of South Africa:										
1936		23,908		865		23,043				
1937		[3] 27,728		[4] 898		26,830				
1938		[3] 24,288		[4] 872		[4] 23,416				
Average	24	[5] 25,308	25	[5] 878	17	[5] 24,430				
Totals:										
1st year		57,658		2,701		54,957				3,876,500
2d year		63,584		982		62,602				4,243,200
3d year		63,758		956		62,802				4,595,000
Average	6	61,667	6	1,546	5	60,120			1	4,238,233
Asia										
Chosen (Korea):										
1935		79,975		73,124		6,851				
1936		93,347		87,720		5,627				
1937		99,077		92,005		7,072				
Average	14	90,800	8	84,283	29	6,517				
Christmas Island (Indian Ocean):										
1936										164,000
1937										165,200
1938										162,400
Average									9	[12] 163,867
India, British:										
1936		10,311		5,801		858		3,652		100
1937		10,357		5,847		770		3,740		200
1938		8,773		4,791		638		3,344		0
Average	32	9,814	20	5,480	40	755	9	3,579	24	[13] 100
Indochina:										
1937										22,200
1938										43,600
1939										45,600
Average									15	[14] 37,133
Japan:										
1935		394,730		166,358		226,372		2,000		66,900
1936		473,863		225,439		244,324		4,100		88,500
1937		[3] 519,732		243,622		269,110		7,000		[15] 77,700
Average	5	[5] 462,775	3	211,806	6	246,602	8	4,367	14	[5] [16] 77,700

See footnotes at end of table.

TABLE 5.—*World production of commercial plant foods and phosphate rock, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food								Phosphate rock	
	Total		N		P_2O_5 [1]		K_2O			
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Asia—Continued										
Manchuria:	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]
1936	--------	51,250	--------	51,250	--------	--------	--------	--------	--------	--------
1937	--------	37,126	--------	37,126	--------	--------	--------	--------	--------	--------
1938	--------	46,740	--------	46,740	--------	--------	--------	--------	--------	--------
Average	21	45,039	14	45,039	--------	--------	--------	--------	--------	--------
Netherlands Indies: [17]										
1937	--------	--------	--------	--------	--------	--------	--------	--------	--------	26,200
1938	--------	--------	--------	--------	--------	--------	--------	--------	--------	33,100
1939	--------	--------	--------	--------	--------	--------	--------	--------	--------	[18] 30,000
Average	--------	--------	--------	--------	--------	--------	--------	--------	16	[9] 29,767
Palestine:										
1936	--------	11,700	--------		--------		--------	11,700	--------	
1937	--------	18,200	--------	--------	--------	--------	--------	18,200	--------	--------
1938	--------	29,100	--------	--------	--------	--------	--------	29,100	--------	--------
Average	26	19,667	--------	--------	--------	--------	7	19,667	--------	--------
Taiwan (Formosa):										
1935	--------	2,958	--------	--------	--------	2,958	--------	--------	--------	--------
1936	--------	3,859	--------	--------	--------	3,859	--------	--------	--------	--------
1937	--------	4,216	--------	--------	--------	4,216	--------	--------	--------	--------
Average	41	3,678	--------	--------	37	3,678	--------	--------	--------	--------
Totals:										
1st year	--------	550,924	--------	296,533	--------	237,039	--------	17,352	--------	279,400
2d year	--------	636,752	--------	356,132	--------	254,580	--------	26,040	--------	330,608
3d year	--------	707,638	--------	387,158	--------	281,036	--------	39,444	--------	315,700
Average	3	631,771	2	346,608	4	257,552	3	27,612	5	308,567
Europe										
Austria:										
1935	--------	8,397	--------	1,071	--------	7,326	--------	--------	--------	--------
1936	--------	9,297	--------	1,323	--------	7,974	--------	--------	--------	--------
1937	--------	[3] 7,239	--------	[19] 1,281	--------	5,958	--------	--------	--------	--------
Average	35	[5] 8,311	24	[5] 1,225	28	7,086	--------	--------	--------	--------
Belgo-Luxemburg Economic Union:										
1935	--------	291,993	--------	64,575	--------	227,418	--------	--------	--------	15,800
1936	--------	308,204	--------	66,320	--------	241,884	--------	--------	--------	16,100
1937	--------	355,344	--------	67,044	--------	288,300	--------	--------	--------	[20] 16,700
Average	6	318,514	10	65,980	4	252,534	--------	--------	18	[5] [21] 16,200
Belgium: [22]										
1935	--------	220,767	--------	64,575	--------	156,192	--------	--------	--------	15,800
1936	--------	230,606	--------	66,320	--------	164,286	--------	--------	--------	16,100
1937	--------	259,494	--------	67,044	--------	192,450	--------	--------	--------	[20] 16,700
Average	--------	236,956	--------	65,980	--------	170,976	--------	--------	--------	[5] [21] 16,200
Luxemburg: [22]										
1935	--------	71,226	--------	--------	--------	71,226	--------	--------	--------	--------
1936	--------	77,598	--------	--------	--------	77,598	--------	--------	--------	--------
1937	--------	95,850	--------	--------	--------	95,850	--------	--------	--------	--------
Average	--------	81,558	--------	--------	--------	81,558	--------	--------	--------	--------
Czechoslovakia:										
1936	--------	72,721	--------	21,421	--------	51,300	--------	--------	--------	--------
1937	--------	74,090	--------	22,649	--------	51,441	--------	--------	--------	--------
1938	--------	68,330	--------	21,044	--------	47,286	--------	--------	--------	--------
Average	16	71,714	16	21,705	14	50,009	--------	--------	--------	--------
Denmark:										
1937	--------	63,360	--------	--------	--------	63,360	--------	--------	--------	--------
1938	--------	59,040	--------	--------	--------	59,040	--------	--------	--------	--------
1939	--------	69,840	--------	--------	--------	69,840	--------	--------	--------	--------
Average	18	64,080	--------	--------	13	64,080	--------	--------	--------	--------
Eire (Ireland):										
1936	--------	20,662	--------	494	--------	20,168	--------	--------	--------	--------
1937	--------	23,180	--------	474	--------	22,706	--------	--------	--------	--------
1938	--------	23,761	--------	371	--------	23,390	--------	--------	--------	--------
Average	25	22,534	27	446	19	22,088	--------	--------	--------	--------
Estonia:										
1936	--------	--------	--------	--------	--------	--------	--------	--------	--------	11,400
1937	--------	--------	--------	--------	--------	--------	--------	--------	--------	10,100
1938	--------	--------	--------	--------	--------	--------	--------	--------	--------	13,000
Average	--------	--------	--------	--------	--------	--------	--------	--------	19	[11] 11,500

See footnotes at end of table.

TABLE 5.—*World production of commercial plant foods and phosphate rock, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food								Phosphate rock	
	Total		N		P_2O_5 [1]		K_2O			
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Europe—Continued										
Finland:	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]
1936		11,260				11,260				
1937		11,340				11,340				
1938		12,460				12,460				
Average	29	11,687			23	11,687				
France:										
1936		852,366		116,626		366,840		368,900		55,000
1937		1,041,261		127,407		424,854		489,000		103,000
1938		[3] 1,023,735		[19] 111,935		330,000		581,800		82,000
Average	3	[5] 972,454	6	[5] 118,656	3	373,898	2	479,900	13	[6] 80,000
Germany:										
1935		[3] 2,479,510		[23] 653,960		429,750		1,395,800		
1936		[3] 2,601,440		[23] 683,790		476,550		1,441,100		
1937		[3] 2,900,655		[23] 693,355		517,800		1,689,500		
Average	1	[5] 2,660,535	1	[5] 677,035	2	474,700	1	1,508,800		
Greece:										
1937		8,128				8,128				
1938		10,064				10,064				
1939		12,640				12,640				
Average	31	10,277			25	10,277				
Hungary:										
1937		5,728		328		5,400				
1938		8,287		349		7,938				
1939		11,676		390		11,286				
Average	34	8,564	28	356	27	8,208				
Italy:										
1936		277,592		72,692		204,900				
1937		280,300		80,320		199,980				
1938		298,122		87,237		210,885				
Average	7	285,338	9	80,083	8	205,255				
Latvia:										
1936		12,873				12,873				
1937		20,007				20,007				
1938		20,916				20,916				
Average	27	17,932			20	17,932				
Lithuania:										
1937		7,740				7,740				
1938		[3] 4,320				[18] 4,320				
1939		[3] 720				[18] 720				
Average	40	[5] 4,260			34	[5] 4,260				
Netherlands:										
1937		149,298		68,703		80,595				
1938		152,620		67,135		85,485				
1939		139,233		57,438		81,795				
Average	13	147,050	11	64,425	12	82,625				
Norway:										
1936		68,731		65,077		3,654				
1937		64,879		61,549		3,330				
1938		70,757		65,177		5,580				
Average	17	68,122	12	63,934	35	4,188				
Poland:										
1936		127,354		25,506		17,948		83,900		8,500
1937		164,487		36,733		27,754		100,000		8,100
1938		[3] 175,381		44,115		[19] 22,866		108,400		[19] 8,800
Average	12	[5] 155,741	15	35,451	18	[5] 22,856	6	97,433	20	[5] [11] 8,467
Portugal:										
1937		37,110				37,110				
1938		29,505				29,505				
1939		[3] 29,775				[7] 29,775				
Average	23	[5] 32,130			16	[5] 32,130				
Rumania:										
1937		1,872				1,872				
1938		[3] 1,494				[24] 1,494				
1939		[3] 1,494				[24] 1,494				
Average	42	[5] 1,620			39	[5] 1,620				

See footnotes at end of table.

TABLE 5.—*World production of commercial plant foods and phosphate rock, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food								Phosphate rock	
	Total		N		P_2O_5 [1]		K_2O			
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Europe—Continued										
Soviet Union:	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]
1937		573,445		135,095		200,550		237,800		1,821,000
1938		582,169		144,689		220,080		217,400		1,970,000
Average	4	577,807	5	139,892	7	210,315	4	227,600	2	[25] 1,895,500
Spain:										
1933		248,273		2,501		154,672		91,100		14,500
1934		308,734		3,854		165,280		139,600		19,200
1935		295,247		3,547		170,400		121,300		20,000
Average	8	284,085	22	3,301	9	163,451	5	117,333	17	[26] 17,900
Sweden:										
1936		47,785		7,000		40,785				
1937		52,344		6,600		45,744				
1938		57,767		8,300		49,467				
Average	20	52,632	19	7,300	15	45,332				
Switzerland:										
1936		[3] 5,732		[19] 2,222		3,510				
1937		6,242		2,876		3,366				
1938		[3] 5,192		[19] 2,222		2,970				
Average	37	[5] 5,722	23	[5] 2,440	38	3,282				
United Kingdom:										
1936		188,708		78,136		110,572				
1937		241,899		107,079		134,820				
1938		227,273		107,903		119,370				
Average	11	219,293	7	97,706	10	121,588				
Yugoslavia:										
1937		13,209		8,713		4,496				
1938		11,613		8,221		3,392				
1939		[3] 11,756		[27] 7,852		[27] 3,904				
Average	28	[5] 12,193	18	[5] 8,262	36	[5] 3,931				
Totals:										
1st year		5,571,754		1,324,120		2,070,134		2,177,500		1,926,200
2d year		6,071,001		1,421,368		2,262,533		2,387,100		2,126,500
3d year		6,395,028		1,419,103		2,247,325		2,728,600		2,036,000
Average	1	6,012,594	1	1,388,197	1	2,193,331	1	2,431,067	3	2,029,567
North America										
Canada:										
1936		49,084		40,734		8,350				500
1937		58,713		46,515		12,198				100
1938		70,824		52,768		18,056				200
Average	19	59,540	13	46,672	22	12,868			22	[28] 267
United States:										
1937		1,207,877		226,429		723,348		258,100		4,329,800
1938		1,055,360		183,994		583,866		287,500		3,922,400
1939		1,115,786		211,874		620,712		283,200		4,049,800
Average	2	1,126,341	4	207,432	1	642,642	3	276,267	1	[29] 4,100,667
Totals:										
1st year		1,256,961		267,163		731,698		258,100		4,330,300
2d year		1,114,073		230,509		596,064		287,500		3,922,500
3d year		1,186,610		264,642		638,768		283,200		4,050,000
Average	2	1,185,881	3	254,105	2	655,510	2	276,267	2	4,100,933
Oceania										
Angaur (Palau Islands):										
1935										77,700
1936										89,200
1937										90,700
Average									12	[13] 85,867
Australia:										
1936		231,279		3,667		227,612				200
1937		265,967		4,038		261,929				0
1938		[3] 262,952		[30] 3,832		259,120				[30] 200
Average	9	[5] 253,399	21	[5] 3,846	5	249,554			23	[31] 133
Makatea:										
1937										187,200
1938										112,900
1939										160,700
Average									10	[28] 153,600

See footnotes at end of table.

TABLE 5.—*World production of commercial plant foods and phosphate rock, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food								Phosphate rock	
	Total		N		P_2O_5 [1]		K_2O			
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Oceania—Continued	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]	*No.*	*Metric tons* [2]
Nauru:										
1937										700,000
1938										854,500
1939										955,000
Average									5	[32] 836,500
New Zealand:										
1937		83,743				83,743				
1938		95,202				95,202				
1939		[3] 89,483				[33] 89,483				
Average	15	[5] 89,476			11	[5] 89,476				
Nouvelle Calédonie (New Caledonia):										
1936		936				[10] 936				
1937		108				[10] 108				
1938		648				[10] 648				
Average	43	564			41	[10] 564				
Ocean Island:										
1937										399,300
1938										312,300
1939										325,500
Average									8	[32] 345,700
Totals:										
1st year		315,958		3,667		312,291				1,364,400
2d year		361,277		4,038		357,239				1,368,900
3d year		353,083		3,832		349,251				1,532,100
Average	4	343,439	5	3,846	3	339,594			4	1,421,800
South America										
Chile:										
1936		222,112		212,828		9,284				
1937		[3] 241,088		[34] 236,006		[20] 5,082				
1938		[3] 235,920		[34] 230,838		[20] 5,082				
Average	10	[5] 233,040	2	[5] 226,557	30	[5] 6,483				
Curaçao Island:										
1936										78,100
1937										101,800
1938										99,300
Average									11	[32] 93,067
Peru:										
1937		38,184		20,683		17,501				
1938		40,752		22,074		18,678				
1939		36,672		19,864		16,808				
Average	22	38,536	17	20,874	21	17,662				
Totals:										
1st year		260,296		233,511		26,785				78,100
2d year		281,840		258,080		23,760				101,800
3d year		272,592		250,702		21,890				99,300
Average	5	271,576	4	247,431	6	24,145			6	93,067
World totals:										
1st year		8,013,551		2,127,695		3,432,904		2,452,952		11,854,900
2d year		8,528,527		2,271,109		3,556,778		2,700,640		12,093,500
3d year		8,978,709		2,326,393		3,601,072		3,051,244		12,628,100
Average		8,506,929		2,241,732		3,530,251		2,734,945		12,192,167
Units:										
Number ranked	43		29		41		9		24	
Minimum rank	43		29		41		9		24	
Divisions:										
Number ranked	6		6		6		3		6	
Minimum rank	6		6		6		3		6	

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[1] P_2O_5 content of phosphate rock not included except as specifically noted.

[2] Tons of 2,204.63 pounds.

[3] See footnotes to figures used in obtaining this total.

[4] Estimated, 1938 value.

[5] See footnotes to figures used in obtaining this average.

[6] Estimated P_2O_5 content, 30.0 percent.

[7] Estimated, 1934–38 average.

[8] Estimated P_2O_5 content, 33.5 percent.

[9] Estimated P_2O_5 content, 35.0 percent.

[10] Leached guano.

[11] Estimated P_2O_5 content, 28.5 percent.

[12] Estimated P_2O_5 content, 39.0 percent.

[13] Estimated P_2O_5 content, 37.0 percent.

[14] Ground phosphates, 20 percent P_2O_5.

[15] Estimated, 1935–36 average.

[16] Estimated P_2O_5 content, 37.5 percent.

[17] Outer Provinces only; data not available for Java and Madura.

[18] Estimated.

[19] Estimated, 1933–37 average.

[20] Estimated, 1932–36 average.

[21] Estimated P_2O_5 content, 21.0 percent.

[22] Not included in totals.

[23] Estimated in part from trade and consumption data.

[24] Estimated, 1935–37 average.

[25] Concentrated apatites and ground phosphates.

[26] Estimated P_2O_5 content, 29.5 percent.

[27] Estimated, 1936–38 average.

[28] Estimated P_2O_5 content, 38.0 percent.

[29] Estimated P_2O_5 content, 33.0 percent.

[30] Estimated, 1934–37 average.

[31] Estimated P_2O_5 content, 25.0 percent.

[32] Estimated P_2O_5 content, 39.5 percent.

[33] Estimated, 1937–38 average.

[34] Nitrogen content of guano produced was estimated from 1932–36 average.

TABLE 6.—*World consumption of commercial plant foods, 3 recent prewar years, average, and relative rank*

Geographic division and unit and year	Total				N				P_2O_5 [1]				K_2O			
	Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption	
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Africa																
Algeria:	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*
1936	------	11,208	------	11,275	------	1,903	------	1,946	------	6,864	------	6,888	------	2,441	------	2,441
1937	------	19,891	------	21,093	------	3,066	------	4,196	------	13,053	------	13,125	------	3,772	------	3,772
1938	------	25,932	------	26,182	------	3,163	------	3,293	------	16,269	------	16,389	------	6,500	------	6,500
Average	34	19,010	37	19,517	36	2,711	41	3,145	28	12,062	30	12,134	28	4,238	28	4,238
Canary Islands:																
1933	------	------	------	9,733	------	------	------	4,283	------	------	------	2,600	------	------	------	2,850
1934	------	------	------	11,014	------	------	------	4,758	------	------	------	2,706	------	------	------	3,550
Average	------	------	43	10,374	------	------	37	4,521	------	------	43	2,653	------	------	31	3,200
Egypt:																
1937	------	97,527	------	97,527	------	85,335	------	85,335	------	11,712	------	11,712	------	480	------	480
1938	------	79,014	------	79,014	------	70,086	------	70,086	------	8,688	------	8,688	------	240	------	240
1939	------	72,403	------	72,403	------	65,779	------	65,779	------	6,464	------	6,464	------	160	------	160
Average	18	82,981	18	82,981	8	73,733	9	73,733	32	8,955	36	8,955	45	293	50	293
French Guinea:																
1936	------	------	------	1,248	------	------	------	------	------	------	------	48	------	------	------	1,200
1937	------	------	------	896	------	------	------	------	------	------	------	496	------	------	------	400
1938	------	------	------	450	------	------	------	------	------	------	------	400	------	------	------	50
Average	------	------	62	865	------	------	------	------	------	------	53	315	------	------	47	550
French Morocco:																
1936	------	3,988	------	4,208	------	------	------	220	------	3,238	------	3,238	------	750	------	750
1937	------	6,931	------	7,659	------	------	------	404	------	5,411	------	5,735	------	1,520	------	1,520
1938	------	8,537	------	8,640	------	------	------	103	------	7,047	------	7,047	------	1,490	------	1,490
Average	44	6,485	47	6,836	------	------	56	242	37	5,232	40	5,340	39	1,253	43	1,253
Madagascar:																
1936	------	------	------	342	------	------	------	62	------	------	------	280	------	------	------	------
1937	------	------	------	613	------	------	------	123	------	------	------	490	------	------	------	------
1938	------	------	------	523	------	------	------	103	------	------	------	420	------	------	------	------
Average	------	------	65	493	------	------	62	96	------	------	52	397	------	------	------	------
Mauritius:																
1937	------	4,721	------	5,927	------	2,697	------	3,295	------	------	------	608	------	2,024	------	2,024
1938	------	4,272	------	5,161	------	2,292	------	2,877	------	------	------	304	------	1,980	------	1,980
1939	------	4,053	------	4,864	------	2,337	------	2,844	------	------	------	304	------	1,716	------	1,716
Average	46	4,349	49	5,317	37	2,442	42	3,005	------	------	51	405	36	1,907	39	1,907
Réunion:																
1937	------	667	------	952	------	667	------	711	------	------	------	32	------	------	------	209
1938	------	954	------	1,786	------	954	------	1,024	------	------	------	80	------	------	------	682
1939	------	580	------	1,165	------	580	------	637	------	------	------	0	------	------	------	528
Average	51	734	60	1,301	45	734	53	791	------	------	58	37	------	------	49	473
Southern Rhodesia:																
1937	------	------	------	1,264	------	------	------	0	------	------	------	1,264	------	------	------	------
1938	------	------	------	1,216	------	------	------	0	------	------	------	1,216	------	------	------	------
1939	------	------	------	928	------	------	------	16	------	------	------	912	------	------	------	------
Average	------	------	61	1,136	------	------	66	5	------	------	48	1,131	------	------	------	------
Tunisia:																
1936	------	5,634	------	5,712	------	201	------	279	------	4,058	------	4,058	------	1,375	------	1,375
1937	------	9,602	------	9,807	------	113	------	318	------	7,854	------	7,854	------	1,635	------	1,635
1938	------	[2] 11,716	------	11,729	------	191	------	204	------	[3] 8,686	------	8,686	------	2,839	------	2,839
Average	41	[4] 8,984	44	9,083	50	168	55	267	35	[4] 6,866	38	6,866	35	1,950	38	1,950
Union of South Africa:																
1936	------	47,455	------	52,068	------	5,387	------	8,205	------	39,228	------	41,023	------	2,840	------	2,840
1937	------	51,175	------	[2] 56,045	------	6,899	------	[5] 9,832	------	41,076	------	43,009	------	3,200	------	3,204
1938	------	[2] 47,445	------	[2] 52,341	------	[6] 7,309	------	[5 7] 9,299	------	37,216	------	[7] 40,118	------	2,920	------	2,924
Average	20	[4] 48,692	20	[4] 53,485	30	[4] 6,532	28	[4] 9,112	15	39,173	16	[4] 41,383	32	2,987	32	2,989
Totals:																
1st year	------	171,200	------	190,256	------	96,190	------	104,336	------	65,100	------	71,751	------	9,910	------	14,169
2d year	------	171,839	------	194,304	------	83,410	------	93,618	------	76,082	------	83,703	------	12,347	------	16,983
3d year	------	170,666	------	189,599	------	79,359	------	86,799	------	75,682	------	83,393	------	15,625	------	19,407
Average	5	171,235	5	191,386	4	86,320	4	94,917	5	72,288	5	79,615	5	12,628	5	16,853
Asia																
British Malaya:																
1937	------	------	------	1,203	------	------	------	167	------	------	------	1,080	------	------	------	44
1938	------	------	------	1,597	------	------	------	233	------	------	------	1,320	------	------	------	44
1939	------	------	------	1,626	------	------	------	242	------	------	------	1,296	------	------	------	88
Average	------	------	58	1,475	------	------	58	214	------	------	47	1,232	------	------	57	29

See footnotes at end of table.

TABLE 6.—*World consumption of commercial plant foods, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Total				N				P_2O_5 [1]				K_2O			
	Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption	
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Asia—Coutinued	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*
Burma:																
1937	------	------	------	164	------	------	------	164	------	------	------	------	------	------	------	------
1938	------	------	------	62	------	------	------	62	------	------	------	------	------	------	------	------
1939	------	------	------	82	------	------	------	82	------	------	------	------	------	------	------	------
Average	------	------	70	103	------	------	61	103	------	------	------	------	------	------	------	------
Ceylon:																
1937	------	13,205	------	22,972	------	7,549	------	8,598	------	616	------	9,762	------	5,040	------	4,612
1938	------	12,349	------	21,055	------	7,673	------	8,568	------	548	------	8,195	------	4,128	------	4,292
1939	------	11,994	------	22,117	------	7,252	------	8,237	------	422	------	9,400	------	4,320	------	4,480
Average	39	12,516	35	22,048	25	7,491	29	8,468	45	529	35	9,119	27	4,496	27	4,461
China:																
1937	------	33,497	------	35,272	------	33,497	------	33,952	------	------	------	924	------	------	------	396
1938	------	21,812	------	22,411	------	21,812	------	21,923	------	------	------	312	------	------	------	176
1939	------	25,051	------	25,521	------	25,051	------	25,229	------	------	------	204	------	------	------	88
Average	28	26,787	31	27,735	15	26,787	16	27,035	------	------	50	480	------	------	51	220
Chosen (Korea):																
1935	------	96,799	------	100,181	------	69,711	------	73,093	------	24,888	------	24,888	------	2,200	------	2,200
1936	------	99,757	------	119,855	------	81,395	------	100,932	------	17,562	------	18,123	------	800	------	800
1937	------	103,166	------	128,586	------	82,918	------	107,046	------	18,748	------	20,040	------	1,500	------	1,500
Average	16	99,907	15	116,207	7	78,008	8	93,690	22	20,400	24	21,017	38	1,500	42	1,500
Cyprus:																
1937	------	560	------	560	------	------	------	------	------	560	------	560	------	------	------	------
1938	------	640	------	640	------	------	------	------	------	640	------	640	------	------	------	------
1939	------	560	------	560	------	------	------	------	------	560	------	560	------	------	------	------
Average	52	587	64	587	------	------	------	------	44	587	49	587	------	------	------	------
Hong Kong:																
1937	------	------	------	[2] 5,555	------	------	------	5,199	------	------	------	[8] 48	------	------	------	308
1938	------	------	------	2,428	------	------	------	2,516	------	------	------	------	------	------	------	88
1939	------	------	------	1,645	------	------	------	1,733	------	------	------	------	------	------	------	−88
Average	------	------	57	[4] 1,591	------	------	48	1,472	------	------	60	[4] 16	------	------	54	103
India, British:																
1936	------	18,519	------	19,160	------	15,668	------	16,019	------	1,152	------	1,486	------	1,699	------	1,655
1937	------	17,139	------	17,668	------	13,974	------	14,229	------	1,422	------	1,694	------	1,743	------	1,745
1938	------	21,807	------	22,237	------	18,382	------	18,616	------	1,458	------	1,656	------	1,967	------	1,965
Average	33	19,155	36	19,688	20	16,008	21	16,288	42	1,344	46	1,612	37	1,803	40	1,788
India, Portuguese:																
1935	------	------	------	62	------	------	------	62	------	------	------	------	------	------	------	------
1936	------	------	------	103	------	------	------	103	------	------	------	------	------	------	------	------
1937	------	------	------	62	------	------	------	62	------	------	------	------	------	------	------	------
Average	------	------	71	76	------	------	64	76	------	------	------	------	------	------	------	------
Indochina:																
1937	------	5,768	------	8,718	------	779	------	1,961	------	4,040	------	5,798	------	949	------	959
1938	------	8,945	------	12,587	------	431	------	793	------	7,460	------	10,770	------	1,054	------	1,024
1939	------	[2] 7,294	------	14,019	------	451	------	1,387	------	[9] 6,000	------	11,768	------	843	------	864
Average	42	[4] 7,336	42	11,775	46	554	49	1,380	36	[4] 5,833	34	9,445	43	949	46	949
Japan:																
1935	------	484,155	------	518,626	------	204,385	------	219,414	------	195,670	------	213,002	------	84,100	------	86,210
1936	------	548,559	------	590,809	------	255,851	------	275,651	------	211,208	------	232,188	------	81,500	------	82,970
1937	------	616,506	------	653,040	------	248,023	------	263,407	------	234,583	------	253,538	------	133,900	------	136,095
Average	5	549,740	5	587,492	1	236,086	3	252,824	6	213,820	6	232,909	6	99,833	6	101,758
Manchuria:																
1936	------	------	------	15,232	------	------	------	15,232	------	------	------	------	------	------	------	------
1937	------	------	------	5,947	------	------	------	5,947	------	------	------	------	------	------	------	------
1938	------	------	------	3,447	------	------	------	3,447	------	------	------	------	------	------	------	------
Average	------	------	45	8,209	------	------	30	8,209	------	------	------	------	------	------	------	------
Netherlands East Indies:																
1937	------	23,879	------	33,433	------	21,075	------	21,283	------	1,044	------	10,390	------	1,760	------	1,760
1938	------	17,265	------	29,073	------	14,669	------	14,804	------	756	------	12,429	------	1,840	------	1,840
1939	------	23,906	------	[2] 34,724	------	20,296	------	20,504	------	810	------	[9] 11,420	------	2,800	------	2,800
Average	31	21,683	29	[4] 32,410	18	18,680	20	18,864	43	870	31	[4] 11,413	34	2,133	37	2,133
Java and Madura: [10]																
1937	------	------	------	[2] 20,265	------	------	------	18,342	------	------	------	[11] 963	------	------	------	960
1938	------	------	------	[2] 13,012	------	------	------	11,541	------	------	------	[11] 591	------	------	------	880
1939	------	------	------	[2] 20,099	------	------	------	18,033	------	------	------	[11] 786	------	------	------	1,280
Average	------	------	------	[4] 17,792	------	------	------	15,972	------	------	------	[4] 780	------	------	------	1,040

See footnotes at end of table.

TABLE 6.—*World consumption of commercial plant foods, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Total				N				P_2O_5 [1]				K_2O			
	Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption	
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Asia—Continued																
Netherlands East Indies:																
Outer Provinces: [10]	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*
1937	---	---	---	[3] 3,998	---	---	---	2,941	---	---	---	[11] 257	---	---	---	800
1938	---	---	---	[3] 4,476	---	---	---	3,263	---	---	---	[11] 253	---	---	---	960
1939	---	---	---	[2] 4,125	---	---	---	2,471	---	---	---	[11] 134	---	---	---	1,520
Average	---	---	---	[4] 4,200	---	---	---	2,892	---	---	---	[4] 215	---	---	---	1,093
Palestine:																
1936	---	---	---	970	---	---	---	---	---	---	---	---	---	---	---	970
1937	---	---	---	2,635	---	---	---	---	---	---	---	---	---	---	---	2,635
1938	---	---	---	3,095	---	---	---	---	---	---	---	---	---	---	---	3,095
Average	---	---	52	2,233	---	---	---	---	---	---	---	---	---	---	36	2,233
Philippine Islands:																
1937	---	7,360	---	7,786	---	7,360	---	7,360	---	---	---	126	---	---	---	300
1938	---	6,089	---	6,365	---	6,089	---	6,089	---	---	---	126	---	---	---	150
1939	---	6,499	---	6,721	---	6,499	---	6,499	---	---	---	72	---	---	---	150
Average	43	6,649	46	6,957	29	6,649	34	6,649	---	---	57	108	---	---	52	200
Syria and Lebanon:																
1936	---	---	---	90	---	---	---	---	---	---	---	90	---	---	---	---
1937	---	---	---	210	---	---	---	---	---	---	---	210	---	---	---	---
1938	---	---	---	360	---	---	---	---	---	---	---	360	---	---	---	---
Average	---	---	66	220	---	---	---	---	---	---	55	220	---	---	---	---
Taiwan (Formosa):																
1935	---	31,618	---	45,514	---	24,580	---	30,217	---	7,038	---	13,617	---	---	---	1,680
1936	---	39,543	---	51,571	---	30,771	---	34,932	---	8,772	---	14,314	---	---	---	2,325
1937	---	39,337	---	55,396	---	31,058	---	37,392	---	8,279	---	13,889	---	---	---	4,115
Average	23	36,833	22	50,827	13	28,803	14	34,180	33	8,030	28	13,940	---	---	34	2,707
Turkey:																
1937	---	---	---	202	---	---	---	202	---	---	---	---	---	---	---	---
1938	---	---	---	0	---	---	---	0	---	---	---	---	---	---	---	---
1939	---	---	---	264	---	---	---	264	---	---	---	---	---	---	---	---
Average	---	---	68	155	---	---	60	155	---	---	---	---	---	---	---	---
Totals:																
1st year	---	715,360	---	815,700	---	384,604	---	432,923	---	235,008	---	281,771	---	95,748	---	101,006
2d year	---	772,098	---	880,160	---	432,665	---	481,750	---	248,368	---	300,321	---	91,065	---	98,089
3d year	---	856,120	---	973,502	---	439,930	---	494,147	---	270,860	---	324,203	---	145,330	---	155,152
Average	2	781,193	3	889,787	2	419,066	2	469,607	2	251,412	4	302,098	3	110,714	3	118,082
Europe																
Austria:																
1935	---	24,127	---	23,988	---	4,270	---	4,254	---	12,486	---	12,326	---	7,371	---	7,408
1936	---	28,228	---	28,266	---	5,044	---	5,044	---	13,707	---	13,707	---	9,477	---	9,515
1937	---	[2] 28,383	---	[2] 28,971	---	[5] 6,096	---	[5] 6,255	---	12,303	---	12,463	---	9,984	---	10,253
Average	27	[4] 26,913	32	[4] 27,075	32	[4] 5,137	35	[4] 5,184	27	12,832	29	12,832	21	8,944	21	9,059
Belgo-Luxemburg Economic Union:																
1935	---	160,478	---	217,108	---	57,323	---	60,716	---	20,403	---	73,640	---	82,752	---	82,752
1936	---	137,021	---	198,019	---	[12] 51,988	---	56,017	---	25,317	---	82,286	---	59,716	---	59,716
1937	---	123,038	---	201,502	---	40,773	---	45,763	---	27,396	---	100,870	---	54,869	---	54,869
Average	11	140,179	11	205,543	10	50,028	11	54,165	20	24,372	12	85,599	9	65,779	9	65,779
Belgium: [10]																
1935	---	[2] 153,632	---	210,262	---	55,725	---	59,118	---	[13] 16,155	---	69,392	---	81,752	---	81,752
1936	---	[2] 129,544	---	190,542	---	[12] 50,003	---	54,032	---	[13] 20,925	---	77,894	---	58,616	---	58,616
1937	---	[2] 114,372	---	192,836	---	38,403	---	43,393	---	[13] 22,500	---	95,974	---	53,469	---	53,469
Average	---	[4] 132,516	---	197,880	---	[4] 48,044	---	52,181	23	[4] 19,860	---	81,087	10	64,612	---	64,612
Luxemburg: [10]																
1935	---	[2] 6,846	---	6,846	---	1,598	---	1,598	---	[14] 4,248	---	4,248	---	1,000	---	1,000
1936	---	[3] 7,477	---	7,477	---	1,985	---	1,985	---	[14] 4,392	---	4,392	---	1,100	---	1,100
1937	---	[2] 8,666	---	8,666	---	2,370	---	2,370	---	[14] 4,896	---	4,896	---	1,400	---	1,400
Average	---	[4] 7,663	---	7,663	---	1,984	---	1,984	39	[4] 4,512	---	4,512	40	1,167	---	1,167
Bulgaria:																
1937	---	---	---	153	---	---	---	109	---	---	---	---	---	---	---	44
1938	---	---	---	73	---	---	---	29	---	---	---	---	---	---	---	44
1939	---	---	---	160	---	---	---	61	---	---	---	---	---	---	---	99
Average	---	---	69	129	---	---	65	66	---	---	---	---	---	---	56	62

See footnotes at end of table.

TABLE 6.—*World consumption of commercial plant foods, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Total				N				P_2O_5 [1]				K_2O			
	Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption	
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Europe—Continued	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*
Czechoslovakia:																
1936	------	99,971	------	102,123	------	23,397	------	24,789	------	49,074	------	51,393	------	27,500	------	25,941
1937	------	102,439	------	106,142	------	25,308	------	26,855	------	49,131	------	49,677	------	28,000	------	29,610
1938	------	92,828	------	95,832	------	19,243	------	22,912	------	44,685	------	44,868	------	28,900	------	28,052
Average	17	98,413	17	101,366	17	22,649	18	24,852	14	47,630	15	48,646	13	28,133	13	27,868
Denmark:																
1937	------	122,897	------	122,897	------	31,787	------	31,787	------	64,350	------	64,350	------	26,760	------	26,760
1938	------	147,365	------	147,377	------	51,272	------	51,272	------	64,293	------	64,275	------	31,800	------	31,830
1939	------	149,539	------	149,591	------	38,551	------	38,567	------	72,828	------	72,864	------	38,160	------	38,160
Average	12	139,934	13	139,955	12	40,537	13	40,542	12	67,157	13	67,163	12	32,240	11	32,250
Eire (Ireland):																
1936	------	38,032	------	38,498	------	6,825	------	6,851	------	24,507	------	24,507	------	6,700	------	7,140
1937	------	41,420	------	41,354	------	6,099	------	6,138	------	27,321	------	27,346	------	8,000	------	7,870
1938	------	43,567	------	43,055	------	7,248	------	7,307	------	28,619	------	28,299	------	7,700	------	7,449
Average	22	41,006	25	40,969	28	6,724	33	6,765	18	26,816	21	26,717	25	7,467	25	7,486
Estonia:																
1936	------	10,611	------	10,671	------	586	------	586	------	8,325	------	8,325	------	1,700	------	1,760
1937	------	13,179	------	13,170	------	800	------	800	------	10,079	------	10,050	------	2,300	------	2,320
1938	------	18,361	------	18,321	------	1,348	------	1,348	------	12,813	------	12,813	------	4,200	------	4,160
Average	37	14,050	40	14,054	44	911	52	911	30	10,406	32	10,396	33	2,733	33	2,747
Finland:																
1936	------	36,279	------	39,332	------	4,704	------	5,165	------	18,775	------	21,443	------	12,800	------	12,724
1937	------	53,958	------	58,859	------	8,258	------	8,963	------	28,500	------	32,652	------	17,200	------	17,244
1938	------	52,432	------	58,825	------	8,547	------	9,471	------	26,585	------	32,129	------	17,300	------	17,225
Average	21	47,556	21	52,339	26	7,170	31	7,866	19	24,620	20	28,741	15	15,767	15	15,731
France:																
1936	------	678,406	------	670,945	------	119,896	------	131,711	------	337,710	------	344,682	------	220,800	------	194,552
1937	------	769,453	------	833,149	------	157,481	------	162,178	------	351,972	------	384,718	------	260,000	------	286,253
1938	------	762,930	------	[2] 807,131	------	165,570	------	[15] 170,420	------	297,360	------	330,422	------	300,000	------	306,289
Average	2	736,930	3	[4] 770,408	2	147,649	4	[4] 154,770	3	329,014	4	353,274	3	260,267	3	262,365
Germany:																
1935	------	[2] 1,287,597	------	[2] 1,984,477	------	[16] 16,112	------	[17] 548,057	------	[14] 392,985	------	527,203	------	878,500	------	909,217
1936	------	[2] 1,414,966	------	[2] 2,115,477	------	[16] 16,256	------	[17] 597,463	------	[14] 422,610	------	550,096	------	976,100	------	967,918
1937	------	[2] 1,372,022	------	[2] 2,158,251	------	[16] 20,512	------	[17] 568,631	------	[14] 384,810	------	615,233	------	966,700	------	974,387
Average	1	[4] 1,368,195	1	[4] 2,086,068	19	[4] 17,627	1	[4] 571,384	1	[4] 400,135	2	564,177	1	950,433	1	950,507
Greece:																
1937	------	13,146	------	13,172	------	4,256	------	4,282	------	4,752	------	4,752	------	4,138	------	4,138
1938	------	17,288	------	17,317	------	5,814	------	5,827	------	7,680	------	7,696	------	3,794	------	3,794
1939	------	18,125	------	18,125	------	5,520	------	5,520	------	9,680	------	9,680	------	2,925	------	2,928
Average	36	16,186	38	16,205	31	5,197	36	5,210	34	7,371	37	7,376	31	3,619	30	3,619
Hungary:																
1937	------	11,308	------	11,626	------	1,852	------	1,876	------	8,856	------	9,000	------	600	------	750
1938	------	13,672	------	13,784	------	2,261	------	2,277	------	10,611	------	10,707	------	800	------	800
1939	------	15,612	------	16,002	------	2,826	------	2,846	------	11,286	------	11,406	------	1,500	------	1,750
Average	38	13,531	41	13,804	38	2,313	44	2,333	31	10,251	33	10,371	42	967	44	1,100
Italy:																
1936	------	305,013	------	306,222	------	84,225	------	88,062	------	209,588	------	209,804	------	11,200	------	8,356
1937	------	358,112	------	371,423	------	127,408	------	137,486	------	214,904	------	216,713	------	15,800	------	17,224
1938	------	371,128	------	372,996	------	122,872	------	123,138	------	230,456	------	231,930	------	17,800	------	17,928
Average	6	344,751	6	350,214	5	111,502	6	116,229	5	218,316	7	219,482	17	14,933	17	14,503
Latvia:																
1936	------	24,851	------	24,915	------	2,511	------	2,571	------	17,340	------	17,340	------	5,000	------	5,004
1937	------	39,715	------	40,089	------	3,994	------	4,252	------	26,721	------	26,793	------	9,000	------	9,044
1938	------	37,984	------	38,459	------	4,210	------	4,479	------	24,474	------	24,636	------	9,300	------	9,344
Average	25	34,183	28	34,488	33	3,572	40	3,767	21	22,845	23	22,923	24	7,767	24	7,797
Lithuania:																
1937	------	19,754	------	19,756	------	615	------	628	------	17,499	------	17,484	------	1,640	------	1,644
1938	------	18,554	------	[2] 22,124	------	1,185	------	1,185	------	14,889	------	[3] 18,459	------	2,480	------	2,480
1939	------	[2] 27,867	------	[2] 27,937	------	[18] 1,885	------	2,145	------	[19] 18,582	------	[3, 19] 18,312	------	7,400	------	7,480
Average	30	[4] 22,058	34	[4] 23,272	43	[4] 1,228	51	1,319	24	[4] 16,990	25	[4] 18,085	30	3,840	29	3,868
Netherlands:																
1937	------	[2] 296,747	------	297,098	------	[12] 49,134	------	49,485	------	94,995	------	94,995	------	152,618	------	152,618
1938	------	352,418	------	352,771	------	66,164	------	66,517	------	104,469	------	104,469	------	181,785	------	181,785
1939	------	340,291	------	341,288	------	69,244	------	70,241	------	103,110	------	103,110	------	167,937	------	167,937
Average	7	[4] 329,819	7	330,386	9	[4] 61,514	10	62,081	10	100,858	11	100,858	4	167,447	4	167,447

See footnotes at end of table.

TABLE 6.—*World consumption of commercial plant foods, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Total				N				P_2O_5 [1]				K_2O			
	Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption	
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Europe—Continued	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*
Norway:																
1936	------	33,483	------	30,716	------	6,801	------	6,481	------	13,182	------	13,296	------	13,500	------	10,939
1937	------	38,111	------	34,547	------	7,530	------	6,924	------	14,481	------	14,505	------	16,100	------	13,118
1938	------	37,625	------	44,963	------	6,643	------	8,169	------	15,282	------	15,306	------	15,700	------	21,488
Average	24	36,406	26	36,742	27	6,991	32	7,191	26	14,315	27	14,369	16	15,100	16	15,182
Poland:																
1936	------	108,326	------	109,918	------	17,463	------	17,463	------	24,078	------	25,114	------	66,785	------	67,341
1937	------	144,568	------	146,239	------	24,200	------	24,221	------	37,376	------	38,986	------	82,992	------	83,032
1938	------	[2] 163,441	------	[2] 164,808	------	36,622	------	36,643	------	[3, 9] 33,187	------	[3, 9] 34,517	------	93,632	------	93,648
Average	13	[4] 138,778	12	[4] 140,322	16	26,095	17	26,109	17	[4] 31,547	18	[4] 32,872	7	81,136	7	81,340
Portugal:																
1937	------	53,895	------	53,953	------	14,951	------	14,964	------	37,650	------	37,695	------	1,294	------	1,294
1938	------	45,611	------	46,418	------	14,607	------	15,114	------	30,060	------	30,360	------	944	------	944
1939	------	[2] 49,097	------	[2] 49,097	------	17,707	------	17,707	------	[3] 30,540	------	[3] 30,540	------	850	------	850
Average	19	[4] 49,534	23	[4] 49,823	21	15,755	22	15,928	16	[4] 32,750	19	[4] 32,865	41	1,029	45	1,029
Rumania:																
1937	------	2,176	------	2,207	------	198	------	211	------	1,854	------	1,872	------	124	------	124
1938	------	[2] 1,860	------	[2] 1,886	------	198	------	224	------	[3] 1,494	------	[3] 1,494	------	168	------	168
1939	------	[2] 2,027	------	[2] 2,053	------	245	------	271	------	[3] 1,494	------	[3] 1,494	------	288	------	288
Average	48	[4] 2,021	53	[4] 2,049	49	214	57	235	41	[4] 1,614	45	[4] 1,620	46	193	53	193
Soviet Union:																
1937	------	678,309	------	678,309	------	135,095	------	135,095	------	376,214	------	376,214	------	167,000	------	167,000
1938	------	671,437	------	671,437	------	144,689	------	144,689	------	397,248	------	397,248	------	129,500	------	129,500
Average	4	674,873	4	674,873	3	139,892	5	139,892	2	386,731	3	386,731	5	148,250	5	148,250
Spain:																
1933	------	234,697	------	264,366	------	70,472	------	83,333	------	140,225	------	157,033	------	24,000	------	24,000
1934	------	[2] 293,430	------	308,204	------	102,664	------	106,542	------	165,966	------	166,062	------	[20] 24,800	------	35,600
1935	------	[2] 316,074	------	319,645	------	117,746	------	121,305	------	173,528	------	173,600	------	[20] 24,800	------	24,740
Average	9	[4] 281,400	9	297,405	6	96,961	7	103,727	9	159,906	9	165,565	14	[4] 24,533	12	28,113
Sweden:																
1936	------	114,766	------	115,516	------	27,879	------	28,053	------	44,118	------	44,694	------	42,769	------	42,769
1937	------	124,290	------	125,260	------	24,796	------	25,142	------	54,225	------	54,849	------	45,269	------	45,269
1938	------	137,388	------	138,373	------	29,670	------	29,876	------	52,428	------	53,207	------	55,290	------	55,290
Average	14	125,481	14	126,383	14	27,449	15	27,690	13	50,257	14	50,917	11	47,776	10	47,776
Switzerland:																
1936	------	[2] 25,624	------	[2] 36,613	------	378	------	[18] 3,505	------	[3] 16,146	------	24,488	------	9,100	------	8,620
1937	------	27,794	------	39,483	------	273	------	4,621	------	19,821	------	27,497	------	7,700	------	7,365
1938	------	21,403	------	[2] 32,588	------	315	------	[18] 3,607	------	12,888	------	20,671	------	8,200	------	8,310
Average	29	[4] 24,940	27	[4] 36,228	48	322	39	[4] 3,911	25	[4] 16,285	22	24,219	23	8,333	23	8,098
United Kingdom:																
1936	------	267,694	------	283,276	------	45,054	------	46,732	------	148,220	------	162,124	------	74,420	------	74,420
1937	------	272,524	------	311,020	------	41,910	------	52,743	------	161,224	------	188,887	------	69,390	------	69,390
1938	------	313,770	------	326,621	------	47,917	------	52,895	------	182,532	------	190,405	------	83,321	------	83,321
Average	8	284,663	8	306,972	11	44,960	12	50,790	8	163,992	8	180,472	8	75,711	8	75,711
Yugoslavia:																
1937	------	5,782	------	7,139	------	1,485	------	2,202	------	3,901	------	4,541	------	396	------	396
1938	------	6,150	------	6,170	------	1,181	------	1,201	------	4,609	------	4,609	------	360	------	360
1939	------	[2] 6,277	------	6,309	------	1,602	------	1,602	------	[3] 4,009	------	4,041	------	666	------	666
Average	45	[4] 6,070	48	6,539	42	1,423	47	1,668	40	[4] 4,173	42	4,397	44	474	48	474
Totals:																
1st year	------	4,652,662	------	5,463,671	------	727,269	------	1,298,968	------	2,085,926	------	2,326,992	------	1,839,467	------	1,837,711
2d year	------	5,136,176	------	6,052,555	------	891,380	------	1,513,724	------	2,261,321	------	2,526,638	------	1,983,475	------	2,012,193
3d year	------	5,204,776	------	6,134,442	------	912,804	------	1,491,071	------	2,196,300	------	2,558,213	------	2,095,672	------	2,085,158
Average	1	4,997,871	1	5,883,556	1	843,820	1	1,434,585	1	2,181,182	1	2,470,614	1	1,972,871	1	1,978,354
North America																
Barbados:																
1936	------	------	------	1,406	------	------	------	1,406	------	------	------	------	------	------	------	------
1937	------	------	------	1,467	------	------	------	1,467	------	------	------	------	------	------	------	------
1938	------	------	------	1,217	------	------	------	1,217	------	------	------	------	------	------	------	------
Average	------	------	59	1,363	------	------	50	1,363	------	------	------	------	------	------	------	------
Canada: [21]																
1936	------	17,061	------	52,424	------	2,639	------	7,362	------	10,822	------	28,254	------	3,600	------	16,808
1937	------	18,834	------	71,594	------	2,908	------	15,324	------	11,826	------	32,608	------	4,100	------	23,662
1938	------	18,754	------	89,878	------	2,862	------	21,527	------	11,592	------	40,998	------	4,300	------	27,353
Average	35	18,216	19	71,299	35	2,803	23	14,738	29	11,414	17	33,953	29	4,000	14	22,608

See footnotes at end of table.

TABLE 6.—*World consumption of commercial plant foods, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Total				N				P_2O_5 [1]				K_2O			
	Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption	
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
North America—Continued																
Cuba:	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*
1936				1,983				247								1,7[illegible]6
1937				1,834				156								1,678
1938				1,270				130								1,140
Average			56	1,696			59	178							41	1,518
Guadeloupe:																
1935				136				13				123				
1936				120				65				55				
1937				360				195				165				
Average			67	205			63	91			56	114				
Martinique:																
1936		31		2,978		31		1,348				255				1,375
1937		31		4,890		31		1,812				263				2,815
1938		31		4,855		31		1,891				305				2,659
Average	54	31	50	4,241	51	31	46	1,684			54	274			35	2,283
Mexico:																
1937		[2] 1,550		2,461		[16] 1,550		2,461								
1938		[2] 1,163		2,592		[16] 1,163		2,592								
1939		[2] 1,984		3,354		[16] 1,984		3,354								
Average	50	[4] 1,566	51	2,802	40	[4] 1,566	43	2,802								
Puerto Rico: [22]																
1937		36,664		37,229		17,692		17,692		5,472		5,472		13,500		14,065
1938		32,774		33,359		14,166		14,166		4,608		4,608		14,000		14,585
1939		[2] 23,778		23,753		11,480		11,480		3,798		3,798		[22] 8,500		8,475
Average	26	[4] 31,072	30	31,447	22	14,446	24	14,446	38	4,626	41	4,626	18	[4] 12,000	18	12,375
United States:																
1937		807,723		1,568,500		150,722		351,148		199,401		765,608		457,600		451,744
1938		642,525		1,269,099		119,407		310,033		175,218		606,326		347,900		352,740
1939		629,642		1,252,150		147,235		342,627		178,107		653,735		304,300		255,788
Average	3	693,297	2	1,363,250	4	139,121	2	334,603	7	184,242	1	675,223	2	369,933	2	353,424
Totals:																
1st year		863,029		1,667,117		172,634		381,677		215,695		799,712		474,700		485,728
2d year		695,327		1,384,955		137,675		345,615		191,652		643,860		366,000		395,480
3d year		674,189		1,376,837		163,592		382,421		193,497		699,001		317,100		295,415
Average	3	744,182	2	1,476,303	3	157,967	3	369,904	4	200,281	2	714,191	2	385,933	2	392,208
Oceania																
Australia:																
1936		243,616		246,408		9,866		11,883		227,140		227,758		6,610		6,767
1937		286,028		286,177		11,999		12,735		261,539		261,515		12,490		11,927
1938		[2] 276,778		[2] 279,334		[5] 11,703		[5] 13,031		258,854		259,512		6,221		6,791
Average	10	[4] 268,807	10	[4] 270,640	23	[4] 11,189	26	[4] 12,550	4	249,178	5	249,595	22	8,440	22	8,495
Hawaii:																
1937		[2] 22,745		[2] 26,494		[23] 9,545		13,487				[24] 48		13,200		12,959
1938		[2] 19,302		[2] 23,443		[23] 10,902		13,500				[24] 48		8,400		9,895
1939		[2] 21,614		[2] 22,786		[23] 12,114		13,850				[24] 0		[22] 9,500		8,936
Average	32	[4] 21,220	33	[4] 24,241	24	[4] 10,854	25	13,612			59	[4] 32	19	[4] 10,367	19	10,597
New Zealand:																
1937		104,578		107,955		1,521		3,327		96,777		98,356		6,280		6,272
1938		114,423		119,960		1,583		4,546		106,360		108,918		6,480		6,496
1939		[2] 104,011		[2] 110,868		1,268		4,954		95,223		[3] 98,434		7,520		7,480
Average	15	[4] 107,671	16	[4] 112,928	41	1,457	38	4,276	11	99,453	10	[4] 101,903	26	6,760	26	6,749
Totals:																
1st year		370,939		380,857		20,932		28,697		323,917		326,162		26,090		25,998
2d year		419,753		429,580		24,484		30,781		367,899		370,481		27,370		28,318
3d year		402,403		412,988		25,085		31,835		354,077		357,946		23,241		23,207
Average	4	397,698	4	407,808	5	23,500	6	30,438	3	348,631	3	351,530	4	25,567	4	25,841
South America																
Argentina:																
1936		[2] 384		482		[16] 384		438								44
1937		[2] 640		877		[16] 640		789								88
1938		[2] 512		628		[16] 512		540								88
Average	53	[4] 512	63	662	47	[4] 512	54	589							55	73

See footnotes at end of table.

TABLE 6.—*World consumption of commercial plant foods, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Total				N				P_2O_5 [1]				K_2O			
	Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption		Recorded consumption		Apparent consumption	
	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
South America—Continued																
Brazil:	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*	*No.*	*Metric tons*
1937		[2] 1,581		[2] 1,581		[16] 1,581		[15] 1,581								
1938		[2] 744		[2] 744		[16] 744		[16] 744								
1939		[2] 3,488		[2] 3,488		3,488		[16] 3,488								
Average	49	[4] 1,938	54	[4] 1,938	39	[4] 1,938	45	[4] 1,938								
British Guiana:																
1937				[2] 1,817								[25] 1,817				
1938				[2] 1,501								[25] 1,501				
1939				[2] 1,936								[25] 1,936				
Average			55	[4] 1,751							44	[4] 1,751				
Chile:																
1936		[2] 2,976		16,001		[16] 2,976		9,703				6,298				
1937		[2] 3,648		[2] 12,589		[16] 3,648		8,006				[7] 4,583				
1938		[2] 2,672		[2] 18,417		[16] [23] 2,672		11,517				[7] 6,900				
Average	47	[4] 3,099	39	[4] 15,669	34	[4] 3,099	27	9,742			39	[4] 5,927				
Peru:																
1937		14,450		51,290				19,955				16,885		14,450		14,450
1938		6,450		44,130				20,410				17,270		6,450		6,450
1939		8,650		41,530				17,810				15,070		8,650		8,650
Average	40	9,850	24	45,650			19	19,392			26	16,408	20	9,850	20	9,850
Totals:																
1st year		19,391		71,171		4,941		31,677				25,000		[26] 14,450		[27] 14,494
2d year		11,482		59,841		5,032		29,949				23,334		[26] 6,450		[27] 6,538
3d year		15,322		65,999		6,672		33,355				23,906		[26] 8,650		[27] 8,738
Average	6	15,398	6	65,670	6	5,548	5	31,660			6	24,087	6	[4] 9,850	6	[4] 9,923
World totals:																
1st year		6,792,581		8,588,772		1,406,570		2,278,278		2,925,646		3,831,388		2,460,365		2,479,106
2d year		7,206,675		9,001,395		1,574,646		2,495,437		3,145,322		3,948,357		2,486,707		2,557,601
3d year		7,323,476		9,153,367		1,627,442		2,519,628		3,090,416		4,046,662		2,605,618		2,587,077
Average		7,107,577		8,914,511		1,536,219		2,431,114		3,053,795		3,942,136		2,517,563		2,541,261
Units:																
Number ranked	54		71		51		66		45		60		46		57	
Minimum rank	54		71		51		66		45		60		46		57	
Divisions:																
Number ranked	6		6		6		6		6		6		6		6	
Minimum rank	6		6		6		6		6		6		6		6	

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[1] P_2O_5 content of phosphate rock included in recorded consumption only when recorded as used for direct application, but included in apparent consumption when trade statistics indicate the rock probably was so used.

[2] See footnotes to figures used in obtaining this total.

[3] Includes estimate of superphosphate.

[4] See footnotes to figures used in obtaining this average.

[5] Includes estimate of ammonium sulfate.

[6] Includes estimate of sodium nitrate.

[7] Includes estimate of guano.

[8] Net imports of bones only.

[9] Includes estimate of phosphate rock.

[10] Not included in totals.

[11] Phosphate rock not included.

[12] Includes estimate of calcium nitrate.

[13] Superphosphate only.

[14] Basic slag only.

[15] Includes estimates of ammonium sulfate, calcium nitrate, cyanamide, and sodium nitrate.

[16] Sodium nitrate only.

[17] Includes estimate of ammonium nitrate based on 1930–34 consumption; does not include any calcium or potassium nitrate.

[18] Includes estimate of cyanamide.

[19] Includes estimate of basic slag.

[20] Estimated from 1930–33 average.

[21] Plant-food content of mixed fertilizers not included.

[22] Estimated.

[23] Not including ammonium phosphate.

[24] Bonemeal only.

[25] P_2O_5 content of phosphate rock imports.

[26] Peru only.

[27] Argentina and Peru only.

TABLE 7.—*Ratio of plant foods apparently consumed in commercial fertilizers, recent 3-year prewar average, and relative rank*

Geographic division and unit	Years	Plant-food ratio	Rank of ratio of—		
			P_2O_5 to N	K_2O to N	K_2O to P_2O_5
Africa		N: P_2O_5: K_2O	*No.*	*No.*	*No.*
Algeria	1936–38	1 : 3.9 : 1.3	14	13	23
Canary Islands	1933–34	1: 0.6 : 0.7	34	18	7
Egypt	1937–39	1 : 0.1 : <0.1	38	24	41
French Guinea	1936–38	-- : 1.0 : 1.7	---	---	6
French Morocco	1936–38	1 : 22.1 : 5.2	3	3	28
Madagascar	1936–38	1 : 4.1 : ---	14	---	---
Mauritius	1937–39	1 : 0.1 : 0.6	38	19	2
Réunion	1937–39	1 : <0.1 : 0.6	39	19	2
Tunisia	1936–38	1 : 25.7 : 7.3	1	2	25
Union of South Africa	1936–38	1 : 4.6 : 0.3	12	22	37
Average	---	1: .8 : 0.2	4	5	5
Asia					
British Malaya	1937–39	1 : 5.8 : 0.1	11	23	43
Ceylon	1937–39	1 : 1.1 : 0.5	30	20	17
China	1937–39	1 : <0.1 : <0.1	39	24	19
Chosen (Korea)	1935–37	1 : 0.2 : <0.1	37	24	38
Hong Kong	1937–39	1 : <0.1 : 0.1	39	23	3
India, British	1936–38	1 : 0.1 : 0.1	38	23	8
Indochina	1937–39	1 : 6.8 : 0.7	8	18	36
Japan	1935–37	1 : 0.9 : 0.4	32	21	20
Netherlands East Indies	1937–39	1 : 0.6 : 0.1	34	23	31
Philippine Islands	1937–39	1 : <0.1 : <0.1	39	24	5
Taiwan (Formosa)	1935–37	1 : 0.4 : 0.1	35	23	30
Average	---	1 : 0.6 : 0.3	5	4	4
Europe					
Austria	1935–37	1 : 2.5 : 1.7	20	9	12
Belgo-Luxemburg Economic Union	1935–37	1 : 1.6 : 1.2	27	14	11
Czechoslovakia	1936–38	1 : 2.0 : 1.1	23	15	15
Denmark	1937–39	1 : 1.7 : 0.8	26	17	18
Eire (Ireland)	1936–38	1 : 3.9 : 1.1	15	15	26
Estonia	1936–38	1 : 11.4 : 3.0	6	5	27
Finland	1936–38	1 : 3.7 : 1.7	16	9	15
France	1936–38	1 : 2.3 : 1.7	21	9	12
Germany	1935–37	1 : 1.0 : 1.7	31	9	6
Greece	1937–39	1 : 1.4 : 0.7	28	18	17
Hungary	1937–39	1 : 4.4 : 0.5	13	20	35
Italy	1936–38	1 : 1.9 : 0.1	24	23	39
Latvia	1936–38	1 : 6.1 : 2.1	10	8	23
Lithuania	1937–39	1 : 13.7 : 2.9	5	6	29
Europe—Continued		N: P_2O_5: K_2O	*No.*	*No.*	*No.*
Netherlands	1936–38	1 : 1.6 : 2.7	27	7	6
Norway	1936–38	1 : 2.0 : 2.1	23	8	9
Poland	1936–38	1 : 1.3 : 3.1	29	4	4
Portugal	1937–39	1 : 2.1 : 0.1	22	23	42
Rumania	1937–39	1 : 6.9 : 0.8	7	17	33
Soviet Union	1937–38	1 : 2.8 : 1.1	18	15	22
Spain	1933–35	1 : 1.6 : 0.3	27	22	32
Sweden	1936–38	1 : 1.8 : 1.7	25	9	10
Switzerland	1936–38	1 : 6.2 : 2.1	9	8	24
United Kingdom	1936–38	1 : 3.6 : 1.5	17	11	21
Yugoslavia	1937–39	1 : 2.6 : 0.3	19	22	34
Average	---	1 : 1.7 : 1.4	3	1	1
North America					
Canada	1936–38	1 : 2.3 : 1.5	21	11	14
Cuba	1936–38	1 : --- : 8.5	---	1	---
Guadeloupe	1935–37	1 : 1.3 : ---	29	---	---
Martinique	1936–38	1 : 0.2 : 1.4	37	12	2
Puerto Rico	1937–39	1 : 0.3 : 0.9	36	16	4
United States	1937–39	1 : 2.0 : 1.1	23	15	16
Average	---	1 : 1.9 : 1.1	2	2	2
Oceania					
Australia	1936–38	1 : 19.9 : 0.7	4	18	40
Hawaii	1937–39	1 : 0.1 : 0.8	39	17	1
New Zealand	1937–39	1 : 23.8 : 1.6	2	10	39
Average	---	1 : 11.5 : 0.8	1	3	6
South America					
Argentina	1936–38	1 : --- : 0.1	---	23	---
Chile	1936–38	1 : 0.6 : ---	34	---	---
Peru	1937–39	1 : 0.8 : 0.5	33	20	14
Average	---	1 : 0.8 : 0.3	4	4	3
World average	---	1 : 1.6 : 1.1	---	---	---
Units:					
Number ranked	---	---	57	56	53
Minimum rank	---	---	39	24	43
Divisions:					
Number ranked	---	---	6	6	6
Minimum rank	---	---	5	5	6

TABLE 8.—*Net imports and exports of plant foods and phosphate rock and portion of apparent consumption imported or of production exported, 3 recent prewar years, average, and relative rank*

[Imports designated by a plus (+) sign; exports by a minus (−) sign]

Geographic division and unit and year	Plant food																Phosphate rock			
	Total				N				P_2O_5 [1]				K_2O							
	Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported	
	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion
Africa	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*
Algeria:																				
1936	-----	+4,747	-----	+42.1	-----	+1,946	-----	+100.0	-----	+360	-----	+5.2	-----	+2,441	-----	+100.0	-----	−562,800	-----	−106.0
1937	-----	+9,461	-----	+44.9	-----	+4,196	-----	+100.0	-----	+1,493	-----	+11.4	-----	+3,772	-----	+100.0	-----	−571,500	-----	−90.6
1938	-----	+13,298	-----	+50.8	-----	+3,209	-----	+97.4	-----	+3,589	-----	+21.9	-----	+6,500	-----	+100.0	-----	−482,200	-----	−82.5
Average	+31	+9,169	+19	+47.0	+28	+3,117	+5	+99.1	+25	+1,814	+17	+14.9	+23	+4,238	+1	+100.0	−6	−538,833	−5	−92.5
Angola: [2]																				
1937	-----	−1,440	-----	-----	-----	−780	-----	-----	-----	−660	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1938	-----	−1,994	-----	-----	-----	−1,053	-----	-----	-----	−891	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1939	-----	−1,752	-----	-----	-----	−949	-----	-----	-----	−803	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Average	−17	−1,712	-----	-----	−17	−927	-----	-----	−18	−785	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Canary Islands:																				
1933	-----	+9,733	-----	+100.0	-----	+4,283	-----	+100.0	-----	+2,600	-----	+100.0	-----	+2,850	-----	+100.0	-----	-----	-----	-----
1934	-----	+11,014	-----	+100.0	-----	+4,758	-----	+100.0	-----	+2,706	-----	+100.0	-----	+3,550	-----	+100.0	-----	-----	-----	-----
Average	+28	+10,374	+1	+100.0	+23	+4,521	+1	+100.0	+24	+2,653	+1	+100.0	+26	+3,200	+1	+100.0	-----	-----	-----	-----
Egypt:																				
1937	-----	+94,431	-----	+96.8	-----	+83,391	-----	+97.7	-----	+10,560	-----	+90.2	-----	+480	-----	+100.0	-----	−446,400	-----	−86.3
1938	-----	+78,118	-----	+98.9	-----	+69,958	-----	+99.8	-----	+7,920	-----	+91.2	-----	+240	-----	+100.0	-----	−402,800	-----	−87.9
1939	-----	+71,899	-----	+99.3	-----	+65,707	-----	+99.9	-----	+6,032	-----	+93.3	-----	+160	-----	+100.0	-----	−468,100	-----	[3] −96.8
Average	+4	+81,483	+2	+98.2	+3	+73,019	+6	+99.0	+12	+8,171	+3	+91.2	+42	+293	+1	+100.0	−7	−439,100	−6	[4] −90.4
French Guinea:																				
1936	-----	+1,248	-----	+100.0	-----	-----	-----	-----	-----	+48	-----	+100.0	-----	+1,200	-----	+100.0	-----	-----	-----	-----
1937	-----	+896	-----	+100.0	-----	-----	-----	-----	-----	+496	-----	+100.0	-----	+400	-----	+100.0	-----	-----	-----	-----
1938	-----	+450	-----	+100.0	-----	-----	-----	-----	-----	+400	-----	+100.0	-----	+50	-----	+100.0	-----	-----	-----	-----
Average	+46	865	+1	+100.0	-----	-----	-----	-----	+33	+315	+1	+100.0	+39	+550	+1	+100.0	-----	-----	-----	-----
French Morocco:																				
1936	-----	−178	-----	−5.5	-----	+42	-----	-----	-----	−970	-----	−29.9	-----	+750	-----	+100.0	-----	−1,201,300	-----	−90.0
1937	-----	−3,586	-----	−64.3	-----	−477	-----	-----	-----	−4,629	-----	−83.0	-----	+1,520	-----	+100.0	-----	−1,554,200	-----	−112.8
1938	-----	−257	-----	−4.1	-----	−233	-----	-----	-----	−1,514	-----	−24.0	-----	+1,490	-----	+100.0	-----	−1,432,900	-----	−96.4
Average	−19	−1,340	−8	−26.6	−19	−223	-----	-----	−12	−2,371	−3	−47.0	+35	+1,253	+1	+100.0	−2	−1,396,133	−2	−99.7
Madagascar:																				
1936	-----	−113	-----	-----	-----	+31	-----	+61.3	-----	−144	-----	-----	-----	-----	-----	-----	-----	−4,500	-----	−84.9
1937	-----	−45	-----	-----	-----	+99	-----	+80.5	-----	−144	-----	-----	-----	-----	-----	-----	-----	−2,900	-----	−67.4
1938	-----	−65	-----	-----	-----	+79	-----	+76.7	-----	−144	-----	-----	-----	-----	-----	-----	-----	−4,500	-----	−78.9
Average	−24	−74	-----	-----	+47	+70	+17	+75.0	−28	−144	-----	-----	-----	-----	-----	-----	−13	−3,967	−7	−78.4
Mauritius:																				
1937	-----	+5,927	-----	+100.0	-----	+3,295	-----	+100.0	-----	+608	-----	+100.0	-----	+2,024	-----	+100.0	-----	-----	-----	-----
1938	-----	+5,161	-----	+100.0	-----	+2,877	-----	+100.0	-----	+304	-----	+100.0	-----	+1,980	-----	+100.0	-----	-----	-----	-----
1939	-----	+4,864	-----	+100.0	-----	+2,844	-----	+100.0	-----	+304	-----	+100.0	-----	+1,716	-----	+100.0	-----	-----	-----	-----
Average	+34	+5,317	+1	+100.0	+29	+3,005	+1	+100.0	+32	+405	+1	+100.0	+33	+1,907	+1	+100.0	-----	-----	-----	-----

Réunion:																				
1937		+952		+100.0		+711		+100.0		+32		+100.0		+209		+100.0				
1938		+1,786		+100.0		+1,024		+100.0		+80		+100.0		+682		+100.0				
1939		+1,165		+100.0		+637		+100.0		0		0		+528		+100.0				
Average	+44	+1,301	+1	+100.0	+38	+791	+1	+100.0	+37	+37	+1	+100.0	+41	+473	+1	+100.0				
Seychelles: [2]																				
1936		−7,170		−100.0						−7,170		−100.0								
1937		−2,880		−100.0						−2,880		−100.0								
1938		−6,510		−100.0						−6,510		−100.0								
Average	−13	−5,520	−1	−100.0					−9	−5,520	−1	−100.0								
Southern Rhodesia:																				
1937		+1,264		+100.0		0		0		+1,264		+100.0								
1938		+1,216		+100.0		0		0		+1,216		+100.0								
1939		+928		+100.0		+16		+100.0		+912		+100.0								
Average	+45	+1,136	+1	+100.0	+49	+5	+1	+100.0	+27	+1,131	+1	+100.0								
Tunisia:																				
1936		+2,432		+42.6		+279		+100.0		+778		+19.2		+1,375		+100.0		−1,680,700		−113.0
1937		+2,815		+28.7		+318		+100.0		+862		+11.0		+1,635		+100.0		−1,927,800		−108.8
1938		+4,417		−37.7		+204		+100.0		+1,374		+15.8		+2,839		+100.0		−1,591,300		−78.2
Average	+36	+3,221	+22	+35.5	+40	+267	+1	+100.0	+28	+1,005	+18	+14.6	+32	+1,950	+1	+100.0	−1	−1,733,267	−3	−98.2
Union of South Africa:																				
1936		+28,160		+54.1		+7,340		+89.5		+17,980		+43.8		+2,840		+100.0		+79,400		+100.0
1937		+28,559		+51.0		+8,934		+90.9		+16,421		+38.2		+3,204		+100.0		+118,500		+100.0
1938		+28,069		[4] +53.6		+8,427		+90.6		+16,718		[3] +41.7		+2,924		+100.0		+99,300		+100.0
Average	+11	+28,263	+16	[4] +52.8	+17	+8,234	+14	+90.4	+4	+17,040	+13	[4] +41.2	+27	+2,989	+1	+100.0	+16	+99,067	+1	+100.0
Totals:																				
1st year		+140,000		+73.6		+100,545		+96.4		+25,286		+35.2		+14,169		+100.0		−3,816,300		−98.4
2d year		+130,571		+67.2		+90,634		+96.8		+22,954		+27.4		+16,983		+100.0		−4,340,700		−102.3
3d year		+126,880		+66.9		+84,462		+97.3		+23,011		+27.6		+19,407		+100.0		−3,879,700		−84.4
Average	+3	+132,484	+1	+69.2	+3	+91,880	+1	+96.8	+2	+23,750	+1	+29.8	+4	+16,853	+1	+100.0	−1	−4,012,233	−2	−94.7
Asia																				
British Malaya:																				
1937		+1,203		+100.0		+167		+100.0		+1,080		+100.0		−44				[5] −145,400		
1938		+1,597		+100.0		+233		+100.0		+1,320		+100.0		+44		+100.0		[5] −144,300		
1939		+1,626		+100.0		+242		+100.0		+1,296		+100.0		+88		+100.0		[5] −158,200		
Average	+41	+1,475	+1	+100.0	+41	+214	+1	+100.0	+26	+1,232	+1	+100.0	+49	+29	+1	+100.0		[4] −149,300		
Burma:																				
1937		+52				+148		+90.2		−96										
1938		−246				+18		+29.0		−264										
1939		−170				+46		+56.1		−216										
Average	−23	−121			+48	+71	+20	+68.9	−26	−192										
Ceylon:																				
1937		+17,755		+77.3		+8,598		+100.0		+4,545		+100.0		+4,612		+100.0		+14,100		+100.0
1938		+16,837		+80.0		+8,568		+100.0		+3,977		+100.0		+4,292		+100.0		+11,400		+100.0
1939		+16,974		+76.7		+8,237		+100.0		+4,257		+100.0		+4,480		+100.0		+13,900		+100.0
Average	+22	+17,189	+6	+78.0	+16	+8,468	+1	+100.0	+19	+4,260	+1	+100.0	+22	+4,461	+1	+100.0	+25	+13,133	+1	+100.0
China:																				
1937		+25,640		+72.7		+32,556		+95.9		−7,312				+396		+100.0				
1938		+17,455		+77.9		+21,195		+96.7		−3,916				+176		+100.0				
1939		+17,457		+68.4		+24,057		+95.4		−6,688				+88		+100.0				
Average	+17	+20,184	+10	+72.8	+6	+25,936	+9	+95.9	−7	−5,972			+43	+220	+1	+100.0				
Christmas Island (Indian Ocean):																				
1936																		−164,000		−100.0
1937																		−165,200		−100.0
1938																		−162,400		−100.0
Average																	−9	−163,867	−1	−100.0

See footnotes at end of table.

TABLE 8.—*Net imports and exports of plant foods and phosphate rock and portion of apparent consumption imported or of production exported, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food																Phosphate rock			
	Total				N				P_2O_5 [1]				K_2O							
	Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported	
	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion
Asia—Continued																				
Chosen (Korea):	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*
1935		+4,299		+4.3		−6,751		−9.2		+11,050		+44.4								
1936		+20,421		+17.0		+8,300		+8.2		+12,121		+66.9								
1937		+23,036		+17.9		+10,218		+9.5		+12,818		+64.0								
Average	+25	+15,919	+31	+13.7	+25	+3,922	+29	+4.2	+8	+11,996	+11	+57.1								
Hong Kong:																				
1937		+5,555		+100.0		+5,199		+100.0		+48		+100.0		+308		+100.0				
1938		−2,512				−2,528				−72				+88		+100.0				
1939		+1,309		+79.6		+1,685		+97.2		−288				−88						
Average	+42	+1,451	+4	+91.2	+33	+1,452	+7	+98.6	−29	−104			+46	+103	+1	+100.0				
India, British:																				
1936		−24,676				+5,434		+33.9		−28,113				−1,997		−54.7				
1937		−34,483				+2,422		+17.0		−34,910				−1,995		−53.3				
1938		−8,404				+10,701		+57.5		−17,726				−1,379		−41.2				
Average	−9	−22,521			+21	+6,186	+22	+38.0	−3	−26,916			−7	−1,790	−3	−50.0				
India, French:																				
1936		−112				−16				−96										
1937		−56				−8				−48										
1938		−28				−4				−24										
Average	−25	−65			−20	−9			−31	−56										
India, Portuguese:																				
1935		+62		+100.0		+62		+100.0												
1936		+103		+100.0		+103		+100.0												
1937		+62		+100.0		+62		+100.0												
Average	+49	+76	+1	+100.0	+46	+76	+1	+100.0												
Indochina:																				
1937		+2,766		+31.7		+1,885		+96.1		−78				+959		+100.0		+4,900		+18.1
1938		+1,695		+13.5		+737		+92.9		−66				+1,024		+100.0		+8,900		+17.0
1939		+2,175		+15.5		+1,335		+96.3		−24				+864		+100.0		+11,800		+20.6
Average	+37	+2,212	+26	+18.8	+35	+1,319	+11	+95.6	−31	−56			+38	+949	+1	+100.0	+27	+8,533	+8	+18.6
Japan:																				
1935		+105,003		+20.2		+40,279		+18.4		−19,486		−8.6		+84,210		+97.7		+757,700		+91.9
1936		+93,491		+15.8		+34,182		+12.4		−19,561		−8.0		+78,870		+95.1		+829,800		+90.4
1937		+107,082		+16.4		+3,085		+1.2		−25,098		−10.0		+129,095		+94.9		+922,300		+92.2
Average	+3	+101,859	+27	+17.3	+7	+25,849	+27	+10.2	−4	−21,382	−9	−8.7	+2	+97,392	+3	+95.7	+4	+836,600	+7	+91.5
Manchuria:																				
1936		−39,630		−77.3		−36,534		−71.3		−3,096										
1937		−34,847		−93.9		−31,703		−85.4		−3,144										
1938		−55,837		−119.5		−45,085		−96.5		−10,752										
Average	−7	−43,438	−2	−96.4	−5	−37,774	−3	−83.9	−8	−5,664										

Netherlands East Indies:																				
1937		+24,011		+71.8		+21,247		+99.8		+1,004		+9.7		+1,760		+100.0				
1938		+17,348		+59.7		+14,784		+99.9		+724		+5.8		+1,840		+100.0				
1939		+24,196		+69.7		+20,500		+100.0		+896		+7.8		+2,800		+100.0				
Average	+16	+21,852	+13	+67.4	+11	+18,844	+2	+99.9	+29	+875	+23	+7.7	+31	+2,133	+1	+100.0				
Java and Madura:[6]																				
1937		+20,069		+99.0		+18,314		+99.8		+795		+82.6		+960		+100.0				
1938		+12,900		+99.1		+11,525		+99.9		+495		+83.8		+880		+100.0				
1939		+20,071		+99.9		+18,029		+100.0		+762		+96.9		+1,280		+100.0				
Average		+17,680		+99.4		+15,956		+99.9		+684		+87.7		+1,040		+100.0				
Outer Provinces:[6]																				
1937		+3,942		+98.6		+2,933		+99.7		+209		+81.3		+800		+100.0				
1938		+4,448		+99.4		+3,259		+99.9		+229		+90.5		+960		+100.0				
1939		+4,125		+100.0		+2,471		+100.0		+134		+100.0		+1,520		+100.0				
Average		+4,172		+99.3		+2,888		+99.9		+191		+88.8		+1,093		+100.0				
Palestine:																				
1936		−10,730		−91.7										−10,730		−91.7				
1937		−15,565		−85.5										−15,565		−85.5				
1938		−26,005		−89.4										−26,005		−89.4				
Average	−11	−17,433	−3	−88.6									−5	−17,433	−1	−88.6				
Philippine Islands:																				
1937		+7,786		+100.0		+7,360		+100.0		+126		+100.0		+300		+100.0				
1938		+6,365		+100.0		+6,089		+100.0		+126		+100.0		+150		+100.0				
1939		+6,721		+100.0		+6,499		+100.0		+72		+100.0		+150		+100.0				
Average	+32	+6,957	+1	+100.0	+19	+6,649	+1	+100.0	+36	+108	+1	+100.0	+44	+200	+1	+100.0				
Syria and Lebanon:																				
1936																		+300		+100.0
1937																		+700		+100.0
1938																		+1,200		+100.0
Average																	+30	+733	+1	+100.0
Taiwan (Formosa):																				
1935		+42,528		+93.4		+30,213		+100.0		+10,635		+78.1		+1,680		+100.0				
1936		+47,684		+92.5		+34,928		+100.0		+10,431		+72.9		+2,325		+100.0				
1937		+51,180		+95.5		+37,392		+100.0		+9,673		+69.6		+4,115		+100.0				
Average	+7	+47,131	+3	+92.7	+5	+34,178	+1	+100.0	+10	+10,246	+6	+73.5	+29	+2,707	+1	+100.0				
Turkey:																				
1937		−442				+110		+54.4		−552										
1938		−196				−28				−168										
1939		+40		+15.2		+232		+87.9		−192										
Average	−22	−199			+44	+105	+21	+67.7	−24	−304										
Totals:																				
1st year		+161,070		+19.7		+109,957		+25.4		−30,341		−12.8		+81,454		+80.6		+613,000		+68.7
2d year		+135,091		+15.3		+97,292		+20.2		−33,450		−13.1		+71,249		+72.6		+685,600		+67.5
3d year		+161,414		+16.6		+79,202		+16.0		−31,996		−11.4		+114,208		+73.6		+786,800		+71.4
Average	+2	+152,525	+3	+17.1	+2	+95,484	+4	+20.3	−2	−31,929	−2	−12.4	+2	+88,970	+2	+75.3	+2	+695,133	+2	+69.3
Europe																				
Austria:																				
1935		+15,417		+64.3		+3,153		+74.1		+4,944		+40.1		+7,320		+98.8		+18,600		+100.0
1936		+18,687		+66.1		+3,671		+72.8		+5,589		+40.8		+9,427		+99.1		+23,900		+100.0
1937		+21,004		+72.5		+4,846		+77.5		+6,081		+48.8		+10,077		+98.3		+17,900		+100.0
Average	+19	+18,369	+12	+67.8	+26	+3,890	+17	+75.0	+14	+5,538	+12	+43.2	+16	+8,941	+2	+98.7	+23	+20,133	+1	+100.0
Belgo-Luxemburg Economic Union:																				
1935		−81.451		−27.9		−6,642		−10.3		−157,561		−69.3		+82,752		+100.0		+206,500		+92.9
1936		−119,708		−38.8		−15,518		−23.4		−163,906		−67.8		+59,716		+100.0		+265,500		+94.3
1937		−166,036		−46.7		−28,696		−42.8		−192,209		−66.7		+54,869		+100.0		+309,000		+94.9
Average	−4	−122,398	−6	−38.4	−7	−16,952	−9	−25.7	−1	−171,225	−2	−67.8	+5	+65,779	+1	+100.0	+10	+260,333	+5	+94.1

See footnotes at end of table.

TABLE 8.—*Net imports and exports of plant foods and phosphate rock and portion of apparent consumption imported or of production exported, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food																Phosphate rock			
	Total				N				P_2O_5 [1]				K_2O							
	Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported	
	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion
Europe—Continued																				
Belgo-Luxemburg Economic Union:																				
Belgium: [6]	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*
1935		−15,641		−7.1		−6,810		−10.5		−90,583		−58.0		+81,752		+100.0				
1936		−47,924		−20.8		−15,840		−23.9		−90,700		−55.2		+58,616		+100.0				
1937		−74,446		−28.7		−26,660		−39.8		−101,255		−52.6		+53,469		+100.0				
Average		−46,004		−19.4		−16,437		−24.9		−94,179		−55.1		+64,612		+100.0				
Luxemburg: [6]																				
1935		−65,809		−92.4		+169		+10.6		−66,978		−94.0		+1,000		+100.0				
1936		−71,784		−92.5		+322		+16.2		−73,206		−94.3		+1,100		+100.0				
1937		−91,590		−95.6		−2,036		−46.2		−90,954		−94.9		+1,400		+100.0				
Average		−76,394		−93.7		−515		−20.6		−77,046		−94.5		+1,167		+100.0				
Bulgaria:																				
1937		−127				+69		+63.3		−240				+44		+100.0				
1938		−543				−59				−528				+44		+100.0				
1939		−484				−31				−552				+99		+100.0				
Average	−21	−385			−21	−7			−23	−440			+48	+62	+1	+100.0				
Czechoslovakia:																				
1936		+28,298		+27.7		+2,144		+8.1		+213		+.4		+25,941		+100.0		+131,500		+100.0
1937		+27,832		+26.2		+1,236		+4.6		−3,014		−5.9		+29,610		+100.0		+93,200		+100.0
1938		+26,107		+27.2		+1,907		+8.3		−3,852		−8.1		+28,052		+100.0		+74,800		+100.0
Average	+12	+27,412	+24	+27.0	+31	+1,762	+28	+7.1	−13	−2,218	−11	−4.4	+8	+27,868	+1	+100.0	+15	+99,833	+1	+100.0
Denmark:																				
1937		+59,417		+48.3		+31,767		+99.9		+890		+1.4		+26,760		+100.0		+202,100		+100.0
1938		+88,121		+59.8		+51,236		+99.9		+5,055		+7.9		+31,830		+100.0		+193,100		+100.0
1939		+79,655		+53.2		+38,551		+100.0		+2,944		+4.0		+38,160		+100.0		+230,400		+100.0
Average	+5	+75,731	+15	+54.1	+4	+40,518	+2	+99.9	+23	+2,963	+24	+4.4	+7	+32,250	+1	+100.0	+11	+208,533	+1	+100.0
Eire (Ireland):																				
1936		+16,981		+44.1		+6,357		+92.8		+3,484		+14.2		+7,140		+100.0		+73,300		+100.0
1937		+17,319		+41.9		+5,664		+92.3		+3,785		+13.8		+7,870		+100.0		+88,900		+100.0
1938		+18,439		+42.8		+6,936		+94.9		+4,054		+14.3		+7,449		+100.0		+81,600		+100.0
Average	+21	+17,580	+20	+42.9	+20	+6,319	+12	+93.4	+21	+3,774	+19	+14.1	+20	+7,486	+1	+100.0	+18	+81,267	+1	+100.0
Estonia:																				
1936		+7,422		+69.6		+586		+100.0		+5,076		+61.0		+1,760		+100.0		0		0
1937		+10,207		+77.5		+788		+98.5		+7,099		+70.0		+2,320		+100.0		−100		−1.0
1938		+14,612		+79.8		+1,344		+99.7		+9,108		+71.1		+4,160		+100.0		0		0
Average	+27	+10,747	+8	+76.5	+37	+906	+3	+99.4	+13	+7,094	+8	+68.2	+28	+2,747	+1	+100.0	−14	−33	−10	−.3

Finland:																				
1936	------	+28,072	------	+71.4	------	+5,165	------	+100.0	------	+10,183	------	+47.5	------	+12,724	------	+100.0	------	+29,900	------	+100.0
1937	------	+47,484	------	+80.7	------	+8,963	------	+100.0	------	+21,277	------	+65.2	------	+17,244	------	+100.0	------	+37,000	------	+100.0
1938	------	+46,345	------	+78.8	------	+9,471	------	+100.0	------	+19,649	------	+61.2	------	+17,225	------	+100.0	------	+46,100	------	+100.0
Average	+9	+40,634	+7	+77.6	+18	+7,866	+1	+100.0	+5	+17,036	+10	+59.3	+10	+15,731	+1	+100.0	+20	+37,667	+1	+100.0
France:																				
1936	------	−211,632	------	−24.8	------	+5,802	------	+4.4	------	−43,086	------	−11.7	------	−174,348	------	−47.3	------	+830,000	------	+93.8
1937	------	−245,097	------	−23.5	------	+23,886	------	+14.7	------	−66,236	------	−15.6	------	−202,747	------	−41.5	------	+1,012,500	------	+90.8
1938	------	−273,551	------	−26.7	------	+46,088	------	+27.0	------	−44,128	------	−13.4	------	−275,511	------	−47.4	------	+912,300	------	+91.8
Average	−2	−243,427	−9	−25.0	+8	+25,259	+26	+16.3	−2	−51,150	−7	−13.7	−2	−217,535	−4	−45.3	+2	+918,267	+6	+92.0
Germany:																				
1935	------	−498,033	------	−20.1	------	−107,528	------	−16.4	------	+96,078	------	+18.2	------	−486,583	------	−34.9	------	+741,000	------	+100.0
1936	------	−489,371	------	−18.8	------	−88,173	------	−12.9	------	+71,984	------	+13.1	------	−473,182	------	−32.8	------	+1,125,200	------	+100.0
1937	------	−745,549	------	−25.7	------	−126,428	------	−18.2	------	+95,992	------	+15.6	------	−715,113	------	−42.3	------	+1,000,900	------	+100.0
Average	−1	−577,651	−10	−21.7	−2	−107,376	−10	−15.9	+1	+88,018	+15	+15.6	−1	−558,293	−5	−37.0	+1	+955,700	+1	+100.0
Greece:																				
1937	------	+5,044	------	+38.3	------	+4,282	------	+100.0	------	−3,376	------	−41.5	------	+4,138	------	+100.0	------	------	------	------
1938	------	+7,253	------	+41.9	------	+5,827	------	+100.0	------	−2,368	------	−23.5	------	+3,794	------	+100.0	------	------	------	------
1939	------	+5,485	------	+30.3	------	+5,520	------	+100.0	------	−2,960	------	−23.4	------	+2,925	------	+100.0	------	------	------	------
Average	+33	+5,927	+21	+36.6	+22	+5,210	+1	+100.0	−10	−2,901	−4	28.2	+25	+3,619	+1	+100.0	------	------	------	------
Hungary:																				
1937	------	−5,227	------	[4] −91.3	------	−5,641	------	[3] −71.9	------	−336	------	−6.2	------	+750	------	+100.0	------	+24,200	------	+100.0
1938	------	−3,360	------	[4] −40.5	------	−4,277	------	[3] −61.5	------	+117	------	+1.1	------	+800	------	+100.0	------	+17,200	------	+100.0
1939	------	−715	------	[4] −6.1	------	−2,489	------	[3] −43.1	------	+24	------	+.2	------	+1,750	------	+100.0	------	[7] +20,700	------	+100.0
Average	−14	−3,101	−7	[4] −36.2	−13	−4,136	−6	[4] −60.3	−30	−65	−12	−.8	+36	+1,100	+1	+100.0	+22	[4] +20,700	+1	+100.0
Italy:																				
1936	------	+18,835	------	+6.2	------	+10,533	------	+12.0	------	−54	------	0	------	+8,356	------	+100.0	------	+770,200	------	+100.0
1937	------	+69,159	------	+18.6	------	+44,951	------	+32.7	------	+6,984	------	+3.2	------	+17,224	------	+100.0	------	+924,700	------	+100.0
1938	------	+40,947	------	+11.0	------	+17,375	------	+14.1	------	+5,644	------	+2.4	------	+17,928	------	+100.0	------	+846,800	------	+100.0
Average	+8	+42,980	+32	+12.3	+9	+24,286	+25	+20.9	+20	+4,191	+26	+1.9	+12	+14,503	+1	+100.0	+3	+847,233	+1	+100.0
Latvia:																				
1936	------	+11,818	------	+47.4	------	+2,539	------	+98.8	------	+4,275	------	+24.7	------	+5,004	------	+100.0	------	+51,500	------	+100.0
1937	------	+19,784	------	+49.4	------	+4,212	------	+99.1	------	+6,528	------	+24.4	------	+9,044	------	+100.0	------	+53,600	------	+100.0
1938	------	+17,423	------	+45.3	------	+4,459	------	+99.6	------	+3,620	------	+14.7	------	+9,344	------	+100.0	------	+68,500	------	+100.0
Average	+24	+16,342	+18	+47.4	+27	+3,737	+4	+99.2	+17	+4,808	+14	+21.0	+19	+7,797	+1	+100.0	+19	+57,867	+1	+100.0
Lithuania:																				
1937	------	+11,850	------	+60.0	------	+534	------	+85.0	------	+9,672	------	+55.3	------	+1,644	------	+100.0	------	+32,600	------	+100.0
1938	------	+17,582	------	+79.5	------	+1,083	------	+91.4	------	+14,019	------	+75.9	------	+2,480	------	+100.0	------	+18,200	------	+100.0
1939	------	+27,079	------	+96.9	------	+2,055	------	+95.8	------	+17,544	------	+95.8	------	+7,480	------	+100.0	------	+3,100	------	+100.0
Average	+18	+18,837	+5	+80.9	+36	+1,224	+13	+92.8	+6	+13,745	+5	+76.0	+24	+3,868	+1	+100.0	+24	+17,967	+1	+100.0
Netherlands:																				
1937	------	+136,929	------	+46.1	------	−24,473	------	−35.6	------	+8,784	------	+9.2	------	+152,618	------	+100.0	------	+428,800	------	+100.0
1938	------	+187,376	------	+53.1	------	−7,018	------	−10.4	------	+12,609	------	+12.1	------	+181,785	------	+100.0	------	+434,500	------	+100.0
1939	------	+192,151	------	+56.3	------	+7,818	------	+11.1	------	+16,396	------	+15.9	------	+167,937	------	+100.0	------	+380,200	------	+100.0
Average	+2	+172,152	+17	+52.1	−10	−7,891	−11	−12.2	+7	+12,596	+20	+12.5	+1	+167,447	+1	+100.0	+8	+414,500	+1	+100.0
Norway:																				
1936	------	−57,214	------	−83.2	------	−77,677	------	−119.4	------	+9,524	------	+71.6	------	+10,939	------	+100.0	------	+16,700	------	+100.0
1937	------	−46,779	------	−72.1	------	−71,013	------	−115.4	------	+11,116	------	+76.6	------	+13,118	------	+100.0	------	+20,700	------	+100.0
1938	------	−42,475	------	+60.0	------	−73,553	------	−112.9	------	+9,590	------	+62.7	------	+21,488	------	+100.0	------	+37,000	------	+100.0
Average	−6	−48,823	−4	−71.7	−3	−74,081	−1	−115.9	+11	+10,077	+7	+70.1	+11	+15,182	+1	+100.0	+21	+24,800	+1	+100.0
Poland:																				
1936	------	−23,167	------	−18.2	------	−9,455	------	−37.1	------	+2,847	------	+11.3	------	−16,559	------	−19.7	------	+131,800	------	+93.9
1937	------	−24,275	------	−14.8	------	−13,726	------	−37.4	------	+6,419	------	+16.5	------	−16,968	------	−17.0	------	+140,100	------	+94.5
1938	------	−18,410	------	−10.5	------	−9,185	------	−20.8	------	+5,527	------	+16.0	------	−14,752	------	−13.6	------	+156,900	------	+94.7
Average	−10	−21,951	−12	−14.1	−8	−10,789	−8	−30 4	+16	+4,931	+16	+15.0	−6	−16,093	−7	−16.5	+13	+142,933	+4	+94.4

See footnotes at end of table.

TABLE 8.—*Net imports and exports of plant foods and phosphate rock and portion of apparent consumption imported or of production exported, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food																Phosphate rock			
	Total				N				P_2O_5 [1]				K_2O							
	Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported	
	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion
Europe—Continued	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*
Portugal:																				
1937	------	+16,843	------	+31.2	------	+14,964	------	+100.0	------	+585	------	+1.6	------	+1,294	------	+100.0	------	+147,500	------	+100.0
1938	------	+16,913	------	+36.4	------	+15,114	------	+100.0	------	+855	------	+2.8	------	+944	------	+100.0	------	+126,500	------	+100.0
1939	------	+19,157	------	+39.0	------	+17,707	------	+100.0	------	+600	------	+2.0	------	+850	------	+100.0	------	+121,200	------	+100.0
Average	+20	+17,638	+23	+35.4	+12	+15,928	+1	+100.0	+31	+680	+25	+2.1	+37	+1,029	+1	+100.0	+14	+131,733	+1	+100.0
Rumania:																				
1937	------	+111	------	+5.0	------	+179	------	+84.8	------	−192	------	−10.3	------	+124	------	+100.0	------	+1,500	------	+100.0
1938	------	+196	------	+10.4	------	+196	------	+87.5	------	−168	------	−11.2	------	+168	------	+100.0	------	+3,500	------	+100.0
1939	------	+447	------	+21.8	------	+255	------	+94.1	------	−96	------	−6.4	------	+288	------	+100.0	------	0	------	0
Average	+47	+251	+32	+12.3	+42	+210	+15	+89.4	−27	−152	−8	−9.4	+45	+193	+1	+100.0	+29	+1,667	+1	+100.0
Soviet Union:																				
1937	------	−82,312	------	−14.4	------	−9,376	------	−6.9	------	−2,136	------	−0.9	------	−70,800	------	−29.8	------	[8] −622,100	------	−34.2
1938	------	[9] −98,544	------	−16.9	------	[10] −9,252	------	−6.4	------	−1,392	------	−.5	------	−87,900	------	−40.4	------	[8] −794,300	------	−40.3
Average	−5	[4] −90,428	−11	−15.7	−9	[4] −9,314	−13	−6.7	−14	−1,764	−13	−.7	−4	−79,350	−6	−34.9	−5	[4] −708,200	−8	−37.4
Spain:																				
1933	------	−55	------	−0.0	------	+78,129	------	+93.8	------	+296	------	+0.2	------	−78,480	------	−86.1	------	+502,600	------	+97.2
1934	------	−1,909	------	−.6	------	+102,363	------	+96.1	------	−272	------	−.2	------	−104,000	------	−74.5	------	+564,400	------	+96.7
1935	------	+22,89—5	------	+7.2	------	+117,303	------	+96.7	------	+2,147	------	+1.2	------	−96,560	------	−79.6	------	+594,600	------	+96.7
Average	+31	+6,970	+34	+2.3	+2	+99,265	+10	+95.7	+30	+724	+28	+.4	−3	−93,013	−2	−79.3	+6	+553,867	+3	+96.9
Sweden:																				
1936	------	+67,339	------	+58.3	------	+20,997	------	+74.8	------	+3,573	------	+8.0	------	+42,769	------	+100.0	------	+133,800	------	+100.0
1937	------	+72,300	------	+57.7	------	+18,454	------	+73.4	------	+8,577	------	+15.6	------	+45,269	------	+100.0	------	+151,300	------	+100.0
1938	------	+79,990	------	+57.8	------	+21,488	------	+71.9	------	+3,212	------	+6.0	------	+55,290	------	+100.0	------	+199,500	------	+100.0
Average	+6	+73,210	+14	+57.9	+10	+20,313	+18	+73.4	+15	+5,121	+22	+10.1	+6	+47,776	+1	+100.0	+12	+161,533	+1	+100.0
Switzerland:																				
1936	------	+27,579	------	+75.3	------	+2,019	------	[11] −90.8	------	+20,978	------	+85.7	------	+8,620	------	+100.0	------	------	------	------
1937	------	+28,149	------	+71.3	------	−1,247	------	[11] −43.3	------	+22,031	------	+80.1	------	+7,365	------	+100.0	------	------	------	------
1938	------	+23,608	------	+72.4	------	−1,359	------	[11] −61.2	------	+16,657	------	+80.6	------	+8,310	------	+100.0	------	------	------	------
Average	+13	+26,445	+9	+73.0	−14	−1,542	−5	[4] −63.6	+3	+19,889	+4	+82.1	+18	+8,098	+1	+100.0	------	------	------	------
United Kingdom:																				
1936	------	+24,008	------	+8.5	------	−42,634	------	−54.6	------	−7,778	------	−7.0	------	+74,420	------	+100.0	------	+434,300	------	+100.0
1937	------	−15,795	------	−6.5	------	−57,552	------	−53.7	------	−27,633	------	−20.5	------	+69,390	------	+100.0	------	+453,000	------	+100.0
1938	------	−3,222	------	−1.4	------	−63,228	------	−58.6	------	−23,315	------	−19.5	------	+83,321	------	+100.0	------	+417,000	------	+100.0
Average	+40	+1,664	+35	+.5	−4	−54,471	−7	−55.7	−5	−19,575	−5	−16.1	+4	+75,711	+1	+100.0	+7	+434,767	+1	+100.0
Yugoslavia:																				
1937	------	−6,994	------	−52.9	------	−6,643	------	−76.2	------	−747	------	−16.6	------	+396	------	+100.0	------	+8,300	------	+100.0
1938	------	−7,523	------	−64.8	------	−7,180	------	−87.3	------	−703	------	−20.7	------	+360	------	+100.0	------	+13,700	------	+100.0
1939	------	−7,188	------	[4] −61.1	------	−7,606	------	[3] −96.9	------	−248	------	[3] −6.4	------	+666	------	+100.0	------	+14,800	------	+100.0
Average	−12	−7,235	−5	[4] −59.3	−11	−7.143	−2	[4] −86.4	−20	−566	−6	[4] −14.4	+40	+474	+1	+100.0	+26	+12,267	+1	+100.0

Totals:																				
1st year		−490,187		−8.8		−104,888		−7.9		−34,042		−1.6		−351,257		−16.1		+4,294,600		+69.0
2d year		−424,666		−7.0		+12,629		+.8		−62,300		−2.8		−374,995		−15.7		+4,966,300		+70.0
3d year		−712,656		−11.1		−18,766		−1.3		−50,272		−2.2		−643,618		−23.6		+4,825,100		+70.3
Average	−1	−542,503	−2	−9.0	−2	−37,008	−2	−2.7	−1	−48,871	−3	−2.2	−1	−456,623	−1	−18.8	+1	+4,695,333	+1	+69.8
North America																				
Barbados:																				
1936		+1,406		+100.0		+1,406		+100.0												
1937		+1,467		+100.0		+1,467		+100.0												
1938		+1,217		+100.0		+1,217		+100.0												
Average	+43	+1,363	+1	+100.0	+34	+1,363	+1	+100.0												
Canada:																				
1936		+3,296		+6.3		−33,400		−82.0		+19,888		+70.4		+16,808		+100.0		+75,700		+99.3
1937		+11,481		+16.0		−31,391		−67.5		+19,210		+58.9		+23,662		+100.0		+103,400		+99.9
1938		+18,466		+20.5		−31,325		−59.2		+22,438		+54.7		+27,353		+100.0		+116,500		+99.8
Average	+26	+11,081	+29	+15.5	−6	−32.039	−4	−68.6	+2	+20,512	+9	+60.4	+9	+22,608	+1	+100.0	+17	+98,533	+2	+99.7
Cuba:																				
1936		+1,983		+100.0		+247		+100.0						+1,736		+100.0				
1937		+1,834		+100.0		+156		+100.0						+1,678		+100.0				
1938		+1,270		+100.0		+130		+100.0						+1,140		+100.0				
Average	+39	+1,696	+1	+100.0	+43	+178	+1	+100.0					+34	+1,518	+1	+100.0				
Guadeloupe:																				
1935		136		+100.0		+13		+100.0		+123		+100.0								
1936		120		+100.0		+65		+100.0		+55		+100.0								
1937		360		+100.0		+195		+100.0		+165		+100.0								
Average	+48	205	+1	+100.0	+45	+91	+1	+100.0	+35	+114	+1	+100.0								
Martinique:																				
1936		+2,978		+100.0		+1,348		+100.0		+255		+100.0		+1,375		+100.0				
1937		+4,890		+100.0		+1,812		+100.0		+263		+100.0		+2,815		+100.0				
1938		+4,855		+100.0		+1,891		+100.0		+305		+100.0		+2,659		+100.0				
Average	+35	+4,241	+1	+100.0	+32	+1,684	+1	+100.0	+34	+274	+1	+100.0	+30	+2,283	+1	+100.0				
Mexico:																				
1937		+1,061		+43.1		+1,993		+81.0		−932										
1938		+2,296		+88.6		+2,521		+97.3		−225										
1939		+2,354		+70.2		+3,192		+95.2		−838										
Average	+38	+1,904	+11	+68.0	+30	+2,569	+16	+88.1	−19	−665										
Puerto Rico:																				
1937		+37,229		+100.0		+17,692		+100.0		+5,472		+100.0		+14,065		+100.0				
1938		+33,359		+100.0		+14,166		+100.0		+4,608		+100.0		+14,585		+100.0				
1939		+23,735		+99.9		+11,480		+100.0		+3,780		+99.5		+8,475		+100.0				
Average	+10	+31,441	+1	+100.0	+13	+14,446	+1	+100.0	+18	+4,620	+2	+99.9	+13	+12,375	+1	+100.0				
United States:																				
1937		+328,450		+20.9		+121,091		+34.5		+13,715		+1.8		+193,644		+42.9		−1,056,100		−24.4
1938		+185,887		+14.6		+126,039		+40.7		−5,392		−.9		+65,240		+18.5		−1,152,000		−29.4
1939		+103,640		+8.3		+129,544		+37.8		+1,508		+.2		−27,412		−9.7		−960,600		−23.7
Average	+1	+205,992	+30	+15.1	+1	+125,558	+23	+37.5	+22	+3,277	+27	+.5	+3	+77,157	+4	+21.8	−3	−1,056,233	−9	−25.8
Totals:																				
1st year		+376,539		+22.6		+110,390		+28.9		+38,521		+4.8		+227,628		+46.9		−980,400		−22.6
2d year		+241,334		+17.5		+114,835		+33.2		+18,519		+2.9		+107,980		+27.3		−1,048,600		−26.7
3d year		+155,897		+11.3		+116,324		+30.4		+27,358		+3.9		+12,215		+4.1		−844,100		−20.8
Average	+1	+257,923	+2	+17.5	+1	+113,850	+3	+30.8	+1	+28,132	+2	+3.9	+1	+115,941	+3	+29.6	−2	−957,700	−4	−23.4
Oceania																				
Angaur (Palau Islands):																				
1935																		−87,300		−112.4
1936																		−110,900		−124.3
1937																		−94,800		−104.5
Average																	−11	−97,667	−1	−113.7

See footnotes at end of table.

TABLE 8.—*Net imports and exports of plant foods and phosphate rock and portion of apparent consumption imported or of production exported, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food																Phosphate rock			
	Total				N				P_2O_5[1]				K_2O							
	Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported	
	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion
Oceania—Continued																				
Australia:	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*
1936		+14,877		+6.0		+8,180		+68.8		−70		−0.03		+6,767		+100.0		+613,400		+100.0
1937		+19,938		+7.0		+8,661		+68.0		−650		−.25		+11,927		+100.0		+708,300		+100.0
1938		+15,951		+5.7		+9,156		+70.3		+4		0		+6,791		+100.0		+790,600		+100.0
Average	+23	+16,922	+33	+6.3	+15	+8,666	+19	+69.1	−25	−239	−14	−.1	+17	+8,495	+1	+100.0	+5	+704,100	+1	+100.0
Hawaii:																				
1937		+26,494		+100.0		+13,487		+100.0		+48		+100.0		+12,959		+100.0				
1938		+23,443		+100.0		+13,500		+100.0		+48		+100.0		+9,895		+100.0				
1939		+22,786		+100.0		+13,850		+100.0		0		0		+8,936		+100.0				
Average	+14	+24,241	+1	+100.0	+14	+13,612	+1	+100.0	+38	+32	+1	+100.0	+14	+10,597	+1	+100.0				
Makatea:																				
1937																		−163,200		−87.2
1938																		−112,900		−100.0
1939																		−160,700		−100.0
Average																	−10	−145,600	−4	−94.8
Nauru:																				
1937																		−700,000		−100.0
1938																		−854,500		−100.0
1939																		−955,000		−100.0
Average																	−4	−836,500	−1	−100.0
Nouvelle Calédonie (New Caledonia):																				
1936		−936		−100.0						−936		−100.0								
1937		−108		−100.0						−108		−100.0								
1938		−648		−100.0						−648		−100.0								
Average	−20	−564	−1	−100.0					−21	−564	−1	−100.0								
New Zealand:																				
1937		+23,428		+21.7		+3,215		+96.6		+13,941		+14.2		+6,272		+100.0		+287,700		+100.0
1938		+24,282		+20.2		+4,478		+98.5		+13,308		+12.2		+6,496		+100.0		+268,200		+100.0
1939		+20,937		+18.9		+4,890		+98.7		+8,567		+8.7		+7,480		+100.0		+375,200		+100.0
Average	+15	+22,882	+25	+20.3	+24	+4,194	+8	+98.1	+9	+11,939	+21	+11.7	+21	+6,749	+1	+100.0	+9	+310,367	+1	+100.0
Ocean Island:																				
1937																		−399,300		−100.0
1938																		−312,300		−100.0
1939																		−325,500		−100.0
Average																	−8	−345,700	−1	−100.0

Totals:																				
1st year		+63,863		+16.8		+24,882		+86.7		+12,983		+4.0		+25,998		+100.0		−448,700		−32.9
2d year		+67,555		+15.7		+26,639		+86.5		+12,598		+3.4		+28,318		+100.0		−414,100		−30.3
3d year		+59,026		+14.3		+27,896		+87.6		+7,923		+2.2		+23,207		+100.0		−388,200		−25.3
Average	+4	+63,481	+4	+15.6	+4	+26,472	+2	+87.0	+3	+11,168	+3	+3.2	+3	+25,841	+1	+100.0	−3	−417,000	−3	−29.3
South America																				
Argentina:																				
1936		[9] −25,058				−5,881				−19,221				[12] +44		+100.0				
1937		[9] −30,484				−6,359				−24,213				[12] +88		+100.0				
1938		[9] −19,796				−4,694				−15,190				[12] +88		+100.0				
Average	−8	[4] −25,113				−5,645			−6	−19,541			+47	[4] +73	+1	+100.0				
Brazil:																				
1937		−3,291				+81		+5.1		−3,372										
1938		−1,852				−48				−1,804										
1939		−276				+2,108		+60.4		−2,384										
Average	−16	+−1,806				+714	+24	+36.8	−11	−2,520										
British Guiana:																				
1937																		+4,600		+100.0
1938																		+3,800		+100.0
1939																		+4,900		+100.0
Average																	+28	+4,433	+1	+100.0
Chile:																				
1936		−213,039		−95.9		−210,053		−98.7		−2,986		−32.2								
1937		−259,475		[4] −107.6		−258,976		−109.7		−499		[3] −9.8								
1938		−246,991		−104.7		−248,809		−107.8		+1,818		+26.3								
Average	−3	−239,835	−1	[4] −102.4	−1	−239,279	−1	−105.6	−22	−556	−9	[4] −8.7								
Curaçao Island:																				
1936																		−78,100		−100.0
1937																		−101,800		−100.0
1938																		−99,300		−100.0
Average																	−12	−93,067	−1	−100.0
Falkland Islands:																				
1936		−2,928				−1,586				−1,342										
1937		−1,488				−806				−682										
1938		−1,248				−676				−572										
Average	−15	−1,888			−16	−1,023			−17	−865										
Peru:																				
1937		[9] +13,106		+25.6		−728		−3.5		[2] −616		−3.5		+14,450		+100.0				
1938		[9] +3,378		+76.5		−1,664		−7.5		[2] −1,408		−7.5		+6,450		+100.0				
1939		[9] +4,858		+11.7		−2,054		−10.3		[2] −1,738		−10.3		+8,650		+100.0				
Average	+30	[4] +7,114	+28	+15.6	−15	−1,482	−12	−7.1	−15	[4] −1,254	−10	−7.1	+15	+9,850	+1	+100.0				
Uruguay:																				
1937		−1,708				−311				−1,397										
1938		−1,476				−297				−1,179										
1939		−1,032				−157				−875										
Average	−18	−1,405			−18	−255			−16	−1,150										
Totals:																				
1st year		−232,918		−89.5		−218,478		−93.6		−28,934		−108.0		+14,494		+100.0		−73,500		−94.1
2d year		−291,397		−103.4		−268,150		−103.9		−29,785		−125.4		+6,538		+100.0		−98,000		−96.3
3d year		−264,485		−97.0		−254,282		−101.4		−18,941		−86.5		+8,738		+100.0		−94,400		−95.1
Average	−2	−262,933	−1	−96.8	−1	−246,970	−1	−99.8	−3	−25,887	−1	−107.2	+5	+9,923	+1	+100.0	−4	−88,633	−1	−95.2
World totals:																				
1st year		+18,367		+0.2		+22,408		+1.0		−16,527		−0.5		+12,486		+0.5		−411,300		−3.5
2d year		−141,512		−1.7		+73,879		+3.0		−71,464		−2.0		−143,927		−5.3		−249,500		−2.1
3d year		−473,924		−5.3		+34,836		+1.4		−42,917		−1.2		−465,843		−15.3		+405,500		+3.1
Average		−199,023		−2.3		+43,708		+1.8		−43,636		−1.2		−199,095		−7.3		−85,100		−.7

See footnotes at end of table.

TABLE 8.—*Net imports and exports of plant foods and phosphate rock and portion of apparent consumption imported or of production exported, 3 recent prewar years, average, and relative rank*—Continued

Geographic division and unit and year	Plant food																Phosphate rock			
	Total				N				P_2O_5 [1]				K_2O							
	Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported		Net imports or net exports		Portion of apparent consumption imported or of production exported	
	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion	Rank	Amount	Rank	Portion
Units:	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*	*No.*	*Metric tons*	*No.*	*Percent*
Net importing:																				
Number ranked	49	-----	48	-----	49	-----	49	-----	38	-----	38	-----	49	-----	49	-----	30	-----	30	-----
Minimum rank	49	-----	35	-----	49	-----	29	-----	38	-----	28	-----	49	-----	4	-----	30	-----	8	-----
Net exporting:																				
Number ranked	25	-----	14	-----	21	-----	14	-----	32	-----	16	-----	7	-----	7	-----	14	-----	14	-----
Minimum rank	25	-----	12	-----	21	-----	13	-----	31	-----	14	-----	7	-----	7	-----	14	-----	10	-----
Divisions:																				
Net importing:																				
Number ranked	4	-----	4	-----	4	-----	4	-----	3	-----	3	-----	5	-----	5	-----	2	-----	2	-----
Net exporting:																				
Number ranked	2	-----	2	-----	2	-----	2	-----	3	-----	3	-----	1	-----	1	-----	4	-----	4	-----

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[1] Not including P_2O_5 content of phosphate rock.

[2] Guano exports only.

[3] Based on estimated production.

[4] See footnotes to figures used in obtaining this average.

[5] Probably from Christmas Island; omitted from totals to avoid duplication.

[6] Not included in totals.

[7] Estimated.

[8] Unspecified phosphate rock; probably includes ground phosphates, basic slag, and superphosphates.

[9] See footnotes to figures used in obtaining this total.

[10] Includes estimate of ammonium sulfate exports; 1937 value used.

[11] Includes calcium nitrate exports not recorded under production.

[12] Potassium nitrate only.

TABLE 9.—*World distribution of agricultural areas, recent 3-year prewar average, and relative rank*

Geographic division and unit	Years	Arable land		Permanent meadows and pastures		Arable land and permanent meadows and pastures	
		Rank	Amount	Rank	Amount	Rank	Amount
Africa		*No.*	*1,000 ha.* [1]	*No.*	*1,000 ha.* [1]	*No.*	*1,000 ha.* [1]
Algeria	1936–38	20	5,857.5	39	35.1	23	5,892.6
Egypt	1936–38	35	2,208.7	----	----------	----	----------
French Guinea	1936–37	50	[2] 730.1	37	[3] 113.4	39	843.5
French Morocco	1935–37	18	7,085.7	----	----------	----	----------
Madagascar	1936–37	45	[2] 1,064.4	3	40,000.0	4	41,064.4
Tunisia	1936–38	31	2,934.0	38	100.0	32	3,034.0
Union of South Africa	1936–37	23	5,712.6	----	----------	----	----------
Total	--------	5	25,593.0	3	40,248.5	5	65,841.5
Asia							
Burma	1936–39	14	8,824.0	----	----------	----	----------
India, British	1935–38	3	117,320.5	----	----------	----	----------
Indochina	1936–38	22	[4] 5,597.7	34	[5] 301.7	22	6,061.4
Japan	1936–38	19	6,037.2	19	3,328.0	17	9,365.2
Netherlands East Indies	--------	15	----------	----	----------	----	----------
Java and Madura [6]	1936–38	----	7,838.9	----	----------	----	----------
Outer Provinces [7]	1937–38	----	[8] 567.9	----	[9] 1,406.6	----	1,974.5
Philippine Islands	1935–38	30	3,167.5	----	----------	----	----------
Syria and Lebanon	1936	41	1,350.0	----	----------	----	----------
Turkey	1936–38	16	7,827.4	----	----------	----	----------
Total	--------	3	158,693.1	6	5,036.3	4	163,729.4
Europe							
Albania	1936–38	52	[10] 308.8	30	848.8	37	1,157.6
Austria	1935–36	38	1,974.6	22	2,237.8	26	4,212.4
Belgo-Luxemburg Economic Union	1935–37	43	1,222.5	32	701.6	36	1,924.1
Belgium [11]	1935–37	----	1,112.1	----	656.4	----	1,768.5
Luxemburg [11]	1935–37	----	110.4	----	45.3	----	155.7
Bulgaria	1936–38	28	3,892.3	35	297.6	27	4,189.9
Czechoslovakia	1936–38	21	5,855.5	21	2,330.6	19	8,186.1
Denmark	1937–39	33	2,663.5	33	429.8	31	3,093.3
Eire (Ireland)	1936–38	42	1,305.2	17	3,396.9	25	4,702.1
Estonia	1936–38	44	1,089.2	23	1,748.4	33	2,837.6
Finland	1936–38	34	2,579.4	31	847.3	30	3,426.7
France	1936–38	6	20,687.2	8	11,655.7	6	32,342.9
Germany	1935–37	7	19,390.8	9	8,545.1	7	27,935.9
Greece	1937–39	36	2,201.5	----	----------	----	----------
Europe—Con.		*No.*	*1,000 ha.* [1]	*No.*	*1,000 ha.* [1]	*No.*	*1,000 ha.* [1]
Hungary	1937–39	24	5,613.6	26	1,617.9	21	7,231.5
Italy	1936–38	11	12,987.3	14	5,814.5	11	18,801.8
Latvia	1936–38	37	2,158.4	25	1,677.3	29	3,835.7
Lithuania	1937–39	32	2,731.8	28	1,140.1	28	3,871.9
Netherlands	1937–39	46	981.4	27	1,307.0	34	2,288.4
Norway	1936–38	48	841.2	36	190.9	38	1,032.1
Poland	1936–38	8	18,557.1	12	6,477.2	9	25,034.3
Portugal	1937–39	39	1,664.9	----	----------	----	----------
Rumania	1937–39	10	13,576.8	16	4,137.9	12	17,714.7
Spain	1935	9	15,769.9	4	[12] 19,306.1	5	35,076.0
Sweden	1936–38	29	3,739.9	29	1,091.1	24	4,831.0
Switzerland	1935–37	51	504.4	24	1,680.7	35	2,185.1
Soviet Union	1934	1	223.916.0	1	397,324.0	1	621,240.0
United Kingdom	1936–38	26	5,168.1	5	14,255.3	10	19,423.4
Yugoslavia	1937–39	17	7,554.0	13	6,204.9	16	13,758.9
Total	--------	1	378,935.3	1	495,264.5	1	874,199.8
North America							
Canada	1937–39	5	23,741.7	18	[13] 3,385.6	8	27,127.3
Mexico	1935–36	27	4,902.9	----	----------	----	----------
United States	1937–39	2	137,288.8	15	4,609.0	3	141,897.8
Total	--------	2	165,933.4	5	7,994.6	3	173,928.0
Oceania							
Australia	1935–38	12	12,476.1	20	[14] 3,065.2	14	15,541.3
New Zealand	1937–39	49	806.4	11	6,761.7	20	7,568.1
Total	--------	6	13,282.5	4	9,826.9	6	23,109.4
South America							
Argentina	1935–36	4	[15] 25,421.6	2	[16] 127,975.7	2	153,397.3
Brazil	1934–37	13	8,935.7	----	----------	----	----------
Chile	1935–36	25	5,564.0	7	12,025.1	13	17,589.1
Peru	1929	40	1,438.5	10	7,156.2	18	8,594.7
Uruguay	1936–37	47	900.0	6	12,961.4	15	13,861.4
Total	--------	4	42,259.8	2	160,118.4	2	202,378.2
World total	--------	----	784,697.1	----	718,489.2	----	1,503,186.3
Units:							
Number ranked	--------	52	----------	39	----------	39	----------
Minimum rank	--------	52	----------	39	----------	39	----------
Divisions:							
Number ranked	--------	6	----------	6	----------	6	----------
Minimum rank	--------	6	----------	6	----------	6	----------

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[1] To convert hectares to acres multiply by 2.47109.
[2] Area of food crops.
[3] Area of industrial crops.
[4] Area of food crops, excluding Laos.
[5] Area of export crops, excluding Laos.
[6] Area used for native agriculture.
[7] Area used for European agriculture.
[8] Total cultivated area of plantations.
[9] Total area of plantations in production.
[10] Includes unspecified crops and area under tree and bush crops.
[11] Not included in totals.
[12] Permanent meadow and pasture and woodland and pastures.
[13] Data for 1937; excludes about 14,000,000 hectares of natural pasture in four western Provinces.
[14] Excluding Queensland.
[15] Area sown.
[16] Includes other feed crops.

TABLE 10.—*Apparent world consumption of commercial plant foods per unit area of arable land and of arable land and permanent meadows and pastures, recent 3-year prewar average, and relative rank*

Geographic division and unit	Years	Arable land								Arable land and permanent meadows and pastures							
		Total plant food		N		P_2O_5		K_2O		Total plant food		N		P_2O_5		K_2O	
		Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount	Rank	Amount
Africa		*No.*	*Kg. per ha.* [1]	*No.*	*Kg. per ha.* [1]	*No.*	*Kg. per ha.* [1]	*No.*	*Kg. per ha.* [1]	*No.*	*Kg. per ha.* [1]	*No.*	*Kg. per ha.* [1]	*No.*	*Kg. per ha.* [1]	*No.*	*Kg. per ha.* [1]
Algeria	1936–38	29	3.3	31	0.5	28	2.1	28	0.7	27	3.3	21	0.5	23	2.1	22	0.7
Egypt	1937–39	10	37.6	4	33.4	25	4.1	32	.1	------	------	------	------	------	------	------	------
French Guinea	1936–38	37	1.2	------	------	36	.4	27	.8	32	1.0	------	------	30	.4	22	.7
French Morocco	1936–38	38	1.0	35	.03	34	.8	31	.2	------	------	------	------	------	------	------	------
Madagascar	1936–38	41	.5	34	.1	36	.4	------	------	37	.012	28	.002	33	.01	------	------
Tunisia	1936–38	30	3.1	34	.1	27	2.3	28	.7	28	3.0	24	.1	22	2.3	23	.6
Union of South Africa	1936–38	25	9.4	26	1.6	21	7.2	30	.5	------	------	------	------	------	------	------	------
Asia																	
Burma	1937–39	46	.01	37	.01	------	------	------	------	------	------	------	------	------	------	------	------
India, British	1936–38	42	.2	34	.1	41	.01	34	.02	------	------	------	------	------	------	------	------
Indochina	1937–39	36	2.0	33	.2	31	1.6	31	.2	30	1.9	23	.2	25	1.5	25	.2
Japan	1935–37	5	97.3	3	41.9	5	38.6	5	16.9	5	62.7	3	27.0	3	24.9	5	10.9
Netherlands Indies:																	
Java and Madura	1937–39	34	2.3	24	2.0	39	.1	32	.1	------	------	------	------	------	------	------	------
Outer Provinces	1937–39	26	7.4	18	5.1	36	.4	21	1.9	------	------	------	------	------	------	------	------
Philippine Islands	1937–39	35	2.2	23	2.1	40	.03	33	.06	------	------	------	------	------	------	------	------
Syria and Lebanon	1936–38	42	.2	------	------	37	.2	------	------	------	------	------	------	------	------	------	------
Turkey	1937–39	45	.02	36	.02	------	------	------	------	------	------	------	------	------	------	------	------
Europe																	
Austria	1935–37	22	13.7	21	2.6	23	6.5	16	4.6	22	6.4	17	1.2	21	3.0	15	2.2
Belgo-Luxemburg Economic Union	1935–37	2	168.1	2	44.3	3	70.0	2	53.8	3	106.8	1	28.2	1	44.5	2	34.2
Belgium [2]	1935–37	------	177.9	------	46.9	------	72.9	------	58.1	2	111.9	------	29.5	------	45.9	------	36.5
Luxemburg [2]	1935–37	------	69.4	------	18.0	------	40.9	------	10.6	6	49.2	------	12.7	------	29.0	------	7.5
Bulgaria	1937–39	44	.03	36	.02	------	------	34	.02	36	.03	25	.02	------	------	27	.01
Czechoslovakia	1936–38	20	17.3	19	4.0	20	8.3	15	4.8	17	12.4	11	2.9	16	5.9	12	3.4
Denmark	1937–39	8	52.5	6	15.2	8	25.2	10	12.1	7	45.2	5	13.1	4	21.7	6	10.4
Eire (Ireland)	1936–38	14	31.4	17	5.2	9	20.5	14	5.7	20	8.7	16	1.4	17	5.7	17	1.6
Estonia	1936–38	23	12.9	29	.9	19	9.6	20	2.5	26	5.0	22	.3	20	3.7	19	1.0
Finland	1936–38	18	20.3	20	3.0	16	11.1	13	6.1	15	15.3	14	2.3	14	8.4	9	4.6
France	1936–38	11	37.2	13	7.5	12	17.1	9	12.7	10	23.8	9	4.8	11	10.9	8	8.1
Germany	1935–37	4	107.6	5	29.5	7	29.1	3	49.0	4	74.7	4	20.5	5	20.2	3	34.0
Greece	1937–39	26	7.4	22	2.4	26	3.4	23	1.6	------	------	------	------	------	------	------	------
Hungary	1937–39	33	2.5	32	.4	29	1.8	31	.2	30	1.9	22	.3	26	1.4	25	.2
Italy	1936–38	16	27.0	10	8.9	13	16.9	25	1.1	11	18.6	7	6.2	9	11.7	21	.8
Latvia	1936–38	21	16.0	25	1.7	17	10.6	18	3.6	19	9.0	18	1.0	15	6.0	16	2.0
Lithuania	1937–39	27	8.5	31	.5	22	6.8	24	1.4	23	6.0	22	.3	18	4.8	19	1.0
Netherlands	1937–39	1	336.6	1	63.3	2	102.8	1	170.6	1	144.4	2	27.1	2	44.1	1	73.2
Norway	1936–38	9	43.7	11	8.5	12	17.1	4	18.1	8	35.6	6	7.0	7	13.9	4	14.7
Poland	1936–38	28	7.6	27	1.4	29	1.8	17	4.4	24	5.6	18	1.0	27	1.3	13	3.2
Portugal	1937–39	15	29.9	9	9.6	11	19.7	29	.6	------	------	------	------	------	------	------	------
Rumania	1937–39	43	.15	36	.02	38	.12	35	.01	35	.12	26	.01	32	.11	27	.01
Spain	1933–35	19	18.9	15	6.6	18	10.5	22	1.8	21	8.5	10	3.0	19	4.7	21	.8
Sweden	1936–38	12	33.8	14	7.4	14	13.6	8	12.8	9	26.1	8	5.7	12	10.5	7	9.9
Switzerland	1936–38	6	71.8	12	7.8	4	48.0	6	16.1	13	16.6	15	1.8	10	11.1	11	3.7
Soviet Union	1937–38	31	3.0	30	.6	30	1.7	28	.7	31	1.1	23	.2	29	.6	25	.2
United Kingdom	1936–38	7	59.4	8	9.8	6	34.9	7	14.6	14	15.8	12	2.6	13	9.3	10	3.9
Yugoslavia	1937–39	39	.9	33	.2	35	.6	33	.06	34	.5	24	.1	31	.3	26	.03
North America																	
Canada	1936–38	31	3.0	30	.6	32	1.4	26	1.0	29	2.6	21	.5	28	1.2	21	.8
Mexico	1937–39	40	.6	30	.6	------	------	------	------	------	------	------	------	------	------	------	------
United States	1937–39	24	9.9	22	2.4	24	4.9	19	2.6	18	9.6	13	2.4	18	4.8	14	2.6
Oceania																	
Australia	1936–38	17	21.7	28	1.0	10	20.0	28	.7	12	17.4	19	.8	6	16.1	24	.5
New Zealand	1937–39	3	140.0	16	5.3	1	126.4	11	8.4	16	14.9	20	.6	8	13.5	20	.9
South America																	
Argentina	1936–38	45	.02	36	.02	------	------	36	.003	38	.004	27	.004	------	------	28	.0005
Brazil	1937–39	42	.2	33	.2	------	------	------	------	------	------	------	------	------	------	------	------
Chile	1936–38	32	2.8	25	1.7	33	1.1	------	------	33	.9	20	.6	31	.3	------	------
Peru	1937–39	13	31.7	7	13.5	15	11.4	12	6.8	25	5.3	14	2.3	24	1.9	18	1.1
Average:																	
Europe	------	------	15.5	------	3.8	------	6.5	------	5.2	------	6.7	------	1.6	------	2.8	------	2.3
Others	------	------	7.5	------	2.4	------	3.6	------	1.4	------	4.8	------	1.6	------	2.3	------	.9
World	------	------	11.4	------	3.1	------	5.0	------	3.2	------	5.9	------	1.6	------	2.6	------	1.7
Units:																	
Number ranked	------	51	------	49	------	45	------	44	------	39	------	36	------	35	------	35	------
Minimum rank	------	46	------	37	------	41	------	36	------	38	------	28	------	33	------	28	------

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[1] Multiply by 0.89217 to convert to pounds per acre.

[2] Not included in totals.

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